American media propaganda, which inundates the media so much that it is sometimes unbearable."

But some researchers, while agreeing that France is lagging behind, counseled against trying to duplicate the American model. "Let us not try to copy some American companies that bring together hundreds of [researchers] and keep their eyes riveted on their stock prices on NASDAQ," Froguel argued. Instead, he said, the main priority should be to "give more muscle to public research" so that basic scientists can enter into collaborative research projects with industry—but only, Froguel added, "when it is desirable and possible."

Axel Kahn, a geneticist at the Cochin Institute in Paris who also serves as deputy scientific director for life sciences at the French pharmaceutical giant Rhône-Poulenc Rorer, warned that too great an emphasis on applied research could slow progress in biomedicine. "Most recent medical advances have come from academic research," Kahn said. "The future for finding new drugs lies in a powerful and effective basic research effort."

Whether Allègre will adopt this prescription for France's ailing biomedical research effort will be better known next month, when the government plans to hold a Cabinet meeting to define the priorities for all of French science. But in his *Le Figaro* article, the minister promises a "mobilization" of researchers, university instructors, industry chiefs, politicians, and others to revitalize the nation's research effort. Says Froguel: "We have in France all the human, technical, and financial resources necessary to develop interactions between public and private research, to serve science but also our economy. It is up to us to find the ways to make that work."

–Michael Balter

SPACE SCIENCE

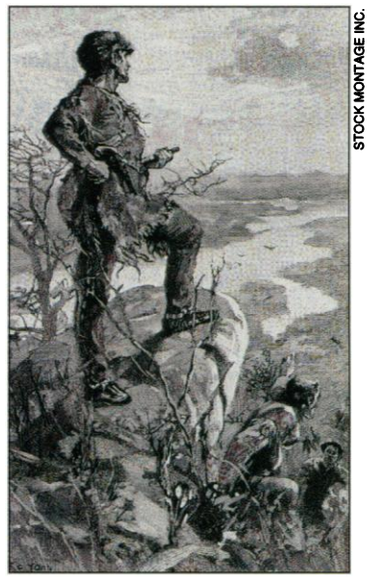
Faster, Cheaper, Better Is Also Harder

Six months after losing the Lewis spacecraft in orbit, NASA last week canceled its intended companion, the Clark mission, before it even got off the ground. Agency officials blame themselves for failing to oversee the two Earth-monitoring projects adequately, but they say that the demise of these missions does not weaken NASA's resolve to build and operate smaller, faster, and cheaper robotic space flights.

The decision not to fly the $55 million Clark vehicle, scheduled for launch this spring after a 2-year delay, marks an ignominious end to a 6-year program designed to show that NASA flights could be accomplished for a fraction of the time and cost of past efforts. Clark's older sibling, the $71 million Lewis mission, lasted just 4 days before spinning out of control last August. NASA Chief Engineer Dan Mulville is leading a group that is sifting through the twin debacles to identify lessons for future missions.

The cancellation of Clark, a small spacecraft with a sophisticated high-resolution camera to scan Earth, came after several months of indecision at NASA headquarters (*Science*, 16 January, p. 318). Officials had long been unhappy with the performance of Orbital Sciences Corp. (OSC) of Fairfax, Virginia, the company that last year purchased the original contractor, CTA Inc. NASA officials cite OSC's failure to fix a host of technical problems and provide sufficient staff to handle those efforts as the primary reasons for the program's continuing delays since the CTA purchase.

But Bill Townsend, NASA's deputy earth science chief, and other agency officials say OSC should not shoulder all the blame. CTA was struggling with the project before it was taken over by OSC, say NASA officials, who admit the agency's own performance also was flawed. The project was initially run by the technology office at headquarters; when that unit was abolished, Clark was transferred to the earth science office. However, the former head of the earth science office, Sam Venneri, remained involved in his new job as chief technologist. The confusing arrangement undermined what was to be a lean and mean management machine. "We learned that we can't expect the contractor to manage the project with just a little NASA oversight," one official says. Venneri was traveling and could not be reached for comment, but Townsend says, "This was a bold management experiment to get out of the oversight business. But with 20/20 hindsight, we did not do a good job."



STOCK MONTAGE INC.

Rocky mission. Meriwether Lewis spied the Rockies, while NASA's Lewis and Clark fell short of scanning the entire planet.

NASA is anxious to avoid a costly legal battle with OSC, which one agency source gripes "has more lawyers than engineers." Faced with the possibility of a suit for reneging on the contract, and lacking an ironclad case against the company, NASA canceled Clark at the "convenience of the government." That phrase means NASA is not officially blaming OSC and will not try to recoup any costs. "It's a very unfortunate learning experience," says one chagrined NASA official. OSC spokesperson Barry Beneski declined comment.

NASA will keep the spacecraft hardware and instruments, now at Goddard Space Flight Center in Greenbelt, Maryland, and cannibalize them for use in other programs, says Townsend. "They own the satellite—they bought it—and they can use it as they see fit," says Beneski, who adds that the company has dropped any plans to sue. The agency intends to use the Lockheed Martin Athena rocket to launch another NASA mission.

An independent inquiry into the failure of the Lewis spacecraft, which is due for release soon, has also apportioned blame between NASA and a contractor. NASA sources say the inquiry faults TRW Inc. for technical flaws in the attitude control system that left the spacecraft vulnerable to instability. Those sources add that the inquiry also criticizes TRW for leaving the control room unattended overnight, when the spinning began. Had the control center been staffed, NASA officials say it is possible the satellite could have been rescued.

TRW spokesperson Sally Koris declined comment, pending release of a report by a panel chaired by Christine Anderson, space vehicle director at the Air Force Research Laboratory in Albuquerque, New Mexico. Sources say that the inquiry also will criticize NASA for not providing sufficient oversight of TRW's efforts. The agency, for example, was not aware of the company's staffing plans for the control room until after the launch. "Our problem was that we had too small a management team," one agency official says.

Anderson's report upholds the faster, cheaper, better philosophy espoused by NASA Administrator Dan Goldin, the sources say, but finds that neither NASA nor TRW had a clear understanding of how to put it into practice. It also faults headquarters for trying to manage the effort. Townsend says that NASA hopes to share with industry the findings of Mulville's panel on lessons learned from Lewis's failure and Clark's termination.

–Andrew Lawler