ASTRONOMY

Panel Recommends "A Little Bit of Bitter Medicine"

For the past year, the U.S. astronomy community has been like a sick person awaiting recommendations for a therapy that is bound to be painful. Cast in the role of physician has been a National Research Council (NRC) panel requested last year by the National Science Foundation (NSF) to suggest how the agency can meet increasing demands for funds to support ground-based optical and infrared astronomy within a budget that is expected to stay flat for many years. The panel's prescription was released at last week's American Astronomical Society meeting in Tucson, Arizona. "The plan has a little bit of bitter medicine for everyone," says the University of Colorado's Richard McCray, who headed the panel that wrote the report.*

In what McCray calls a "paradigm shift," his report argues that the National Optical Astronomy Observatories (NOAO), the NSF-funded organization that runs telescopes and instruments open to the entire astronomy community, must undergo radical surgery and concentrate its increasingly limited resources on a few areas where the organization can provide scientific leadership. The NRC panel acknowledges that this strategy would likely mean closing NOAO's small telescopes on Kitt Peak in Arizona or turning them over to private institutions. For the more than 50% of U.S. astronomers not fortunate enough to have access to private or university-run telescopes, that's a painful prospect. "A large number of astronomers whose only access to front-line research tools is through NOAO telescopes will be unable to carry out their research," notes the report.

But the McCray report also has some unpalatable medicine for astronomers who have managed to build their own telescopes: a plan to create a "national observatory without walls." The idea is that the major independent U.S. observatories, which control 80% of the telescope "glass" in the country, would partially open their facilities to the wider community as a quid pro quo for the NSF money they receive for spectrographs and other instruments. "The private observatories must provide some public access," says McCray.

The drastic prescriptions of the McCray report stem, ironically, from an embarrassment of riches soon to be showered on U.S. astronomers (*Science*, 21 October 1994, p. 356). Major new projects at the independent observatories, among them the 10-meter Keck telescopes in Hawaii, will more than double the glass area available by the turn of the century. The downside is that the new telescopes will have to be instrumented—and private observatories traditionally turn to NSF for most of the needed money. An even larger drain on the astronomy division's budget will be the U.S. commitment to the Gemini project, an international effort to build twin 8-meter telescopes, one in Hawaii and one in Chile, that is likely to cost some $8 million a year to operate and instrument.

Digging in. The Gemini telescope project, here breaking ground on Mauna Kea, will constrain NSF's astronomy budget for years to come.

If NSF's astronomy budget, now $106 million, stays flat—and even that is by no means certain—the McCray panel argues that the NOAO should give up trying to provide a wide variety of telescopes and instruments to all astronomers and concentrate on unique projects. As the two highest priorities, the report lists the Gemini program and continuing funding of NOAO's Cerro Tololo Inter-American Observatory in Chile, which offers U.S. astronomers one of their few opportunities to study the southern sky. The next two priorities are WIYN, a modern 4-meter telescope recently built on Kitt Peak that NOAO operates in collaboration with three universities, and the older 4-meter Mayall telescope on Kitt Peak.

Lowest on the report's priority list—and the first target of any necessary cuts—are the instrumentation development programs at NOAO's Tucson headquarters and all other NOAO operations, which largely means Kitt Peak's small telescopes. If the budget constraints are as severe as expected, the panel adds, operations on the 4-meter Mayall telescope would have to be curtailed as well.

To alleviate some pain, the McCray panel recommends that the quid pro quo plan take effect immediately, with the independent observatories providing a fair share of observing time to outside astronomers in return for the $2 million or so a year they now get from NSF for instrumentation. Even so, the report acknowledges that its recommendations would mean a net yearly loss of 1200 observing nights—40% of the telescope time that NOAO currently provides.

The patient—the astronomy community—seems resigned to this bitter medicine. "Something has to be done. It looks like a fairly rational approach," Vera Rubin of the Carnegie Institution commented at a session in which McCray outlined the NRC report. At that same session, Sidney Wolff, director of NOAO, and Peter Strittmatter, head of the University of Arizona's Steward Observatory and a spokesperson for the major independent observatories, accepted the broad principles of the NRC strategy and pledged to resolve details of providing national access to private facilities.

The McCray report isn't all gloom, however. It makes a vigorous case for a "modest" growth scenario, in which NSF's optical and infrared funds would increase by $10 million a year by 2003. Under that scenario, the panel reports, NOAO might still have to abandon its small telescopes, but an additional $4.8 million could go toward instrumentation for independent observatories. Through the quid pro quo arrangement, that money could provide the national community with telescope time at the independent observatories equivalent to 85 nights on a giant Keck telescope and full-time access to two 4-meter scopes.

Can that extra $10 million be found? McCray, for one, is optimistic. "We've seen big science projects that serve a much smaller community get sold," he says. But the community has no hope of selling the increase to a budget-conscious Congress and NSF, McCray told astronomers in Tucson, unless it rejects the traditional infighting between NOAO and independent observatories and unites to support the NRC's recommendations. At this point, it seems, the U.S. astronomy community needs to build bridges between observatories as much as it needs to build new ones.

–John Travis

* A strategy for ground-based optical and infrared astronomy, available via ftp from jila.colorado.edu (login as "anonymous"; password is "oirpanel"; type "get oirpanel.rpt").