

Extra astronomers

continued from page 70

and continuing education students and teachers as a way of increasing teaching opportunities for astronomers.

► NASA should examine the need for data analysis from space missions, one of the areas of research that has suffered from cutbacks in federal funding, in an attempt to create more job opportunities.

Employment Problems in Astronomy is available without charge from the Committee on Science and Public Policy, National Academy of Sciences, 2101 Constitution Avenue, NW, Washington, D.C. 20418.

Handler and NAS reorganization

continued from page 69

tively by NRC committees from a single discipline," Handler explained. Before the reorganization, a large number of multidisciplinary committees had been established to deal with such issues. As a result of the reorganization, the eight programmatic divisions of the NRC, patterned after the major research disciplines, have been abolished. In their place are four commissions and four assemblies.

The commissions are multidisciplinary in nature and are concerned primarily with the study of very broad areas—natural resources, human resources, international relations and sociotechnical systems. The assemblies focus primarily on the scientific disciplines and on national problems that can be studied within the subset of disciplines in an individual assembly. The new Assembly of Mathematical and Physical Sciences, for example, is a merger of the former divisions of physical sciences, mathematical sciences, earth sciences, and chemistry and chemical technology. Heading the AMPS executive committee is physicist Norris E. Bradbury, a former director of the Los Alamos Scientific Laboratories. The day-to-day operations of AMPS are coordinated by NRC staff member Charles K. Reed, who is executive director of the assembly.

Interdisciplinary approach. The largest component of the AMPS is still the physical sciences, according to Bradbury, and certain discipline-oriented standing committees of the four former divisions have been retained. Overall, AMPS has a budget of about \$5 million and contains some 200 boards, panels and standing committees involving upwards of 2000 scientists and engineers from the NAS membership and from the industrial, academic and research communities at large. "The basic areas AMPS will be involved in will be more interdisciplinary than in the past,"

Bradbury told us, "because the most exciting questions facing the Assembly today are the areas where all the disciplines interact—for example, oceanography, energy, mineral resources, atmospheric sciences and astrophysics." Typical of the kinds of reports that may be expected from AMPS in the future is the recently released study from the Climatic Impact Committee on the "Environmental Impact of Stratospheric Flight," which involved scientists from a broad range of disciplines. More than half the studies AMPS will undertake come directly from executive agency requests or are a result of a role assigned to NRC in legislation. "One of the major responsibilities of the executive committee of the Assembly will be to think of things that aren't being thought of elsewhere and that should be done," Bradbury said.

Fundamental change. Although the NRC changes may appear to be a matter of paper shuffling to the casual observer, the way in which the assemblies and commissions carry out their business is fundamentally changed, Handler said. "In the past the chairman of a division had an executive committee which acted in an advisory capacity only," he explained. "But as the workload grew I became nervous of a chairman making lonely decisions." Now the chairman of each assembly and commission has an executive committee that shares in the decision-making process. Also new is the requirement that at least half the members of each executive committee be members of the NAS, NAE or the Institute of Medicine (formed in 1970). Bradbury's committee, for example, contains 18 men and one woman who meet four times a year to approve and consider proposals for studies; the committee's vote is binding on the chairman.

The governing board of NRC has been transformed from a project-approval body into a policy-making body, which oversees the general direction of the myriad NRC continuing boards, subcommittees, panels and ad hoc groups—in all, more than 600 such groups involving 9000 people. As part of the reorganization, management of NRC is now vested in a governing board containing representatives from both NAS and NAE, thus permitting the long-sought sharing of governance by the two Academies of the activities of the Research Council. Representatives from the Institute of Medicine are also on the board.

One of the most dramatic yet subtle changes in the operations of NRC, according to Handler, goes right to the heart of the Academy's mission to provide unbiased, analytical studies on public issues having scientific or technological components. "Traditionally, when a committee within a division

agreed to undertake a study, that committee took sole responsibility for the resulting report. In practice NRC's responsibility ended when it appointed the people to the committee," Handler told us. "However, very few people made that distinction; reports were loosely called 'NRC reports.' Today, however, we now take the position that each report is the institutional responsibility of the entire NRC." To this end each committee report originating in an assembly or commission is reviewed and approved by its Executive Committee and in many cases by the NRC's Report Review Committee, also a Handler innovation. Established in 1970, this committee, which is headed by the vice-president of NAS, Saunders MacLane, monitors the review process. It goes over reports to try to ensure that a study is fair and balanced, that it has considered all the factors, that it does not contain sweeping, undocumented assertions and that the conclusions and recommendations reasonably flow from the data.

All the changes, and particularly the last, Handler sees as a total package of quality control on the NRC's products—its reports. Always a realist, Handler does not pretend that the NRC reorganization is an instant success nor that the changes alone can guarantee the NRC's credibility. "The reorganization is working very well in some places, less well in others," he admitted. "After all, it has been a drastic wrench in the style of the place. But I am glad we did it when we did because the reasons for having attempted it are even more valid today than they were six years ago. The reorganization will allow us to serve better as a funnel and a focus for the thinking of the best minds in the scientific community to be placed before the appropriate bodies in the Congress and the executive branch. Our reports usually stop short of actual recommendations, but through them, by pointing out options and alternatives, we can create a climate in which decisions are made." Increasing demands from the government for scientific advice means that NAS, NAE, the Institute of Medicine and the NRC are destined to be involved in controversial public policy issues. The reformation of the NRC may ensure that the organization continues to render that service effectively.

—Madeleine Jacobs

in brief

Federal Support to Universities, Colleges, and Selected Nonprofit Institutions, Fiscal Year 1972 (NSF report 74-305) is available from the US Government Printing Office, Washington, D.C. 20402 for \$2.45. □