

STATE AND SOCIETY

AIP Prepares Book on Graduate Physics and Astronomy Programs

In preparation at the American Institute of Physics and scheduled for release in September is a book titled *Graduate Programs in Physics and Astronomy: a Handbook for Advisors of Prospective Doctoral and Master's Students*. The publication will update and expand the information in two earlier out-of-print books *Doctoral Programs in Physics* (Pub. R-184) and *Master's Degree Programs in Physics* (Pub. R-189) issued in 1965 and a 1967 pamphlet *Research Specialties of Doctoral Programs in Physics* (Pub. R-201) that summarized research areas of departments described in *Doctoral Programs*. The new book will include several departures, however, from the earlier editions. For one thing, it combines doctor's and master's programs in the same book. For another, it adds separate astronomy departments that were not included before. For the first time biographical data are supplied for graduate faculty. The highest degree, the date of the degree and the name of the school that granted it are listed for each member of the staff.

In preparing the book Arnold A. Strassenburg, director of the AIP Division of Education and Manpower, and his assistant, Margaret T. Llano, have asked department chairmen to describe their departments as they anticipate they will be in 1969-70. Invitations to participate were extended to all physics and astronomy departments in the US and Puerto Rico that offer PhD programs, master's degree programs or both. PhD research programs are described in terms of 24 major specialty titles selected by AIP to cover as nearly as possible general research areas of academic departments. Departments were also asked to indicate whether their work in each category is experimental or theoretical. A table like the one that appeared in the 1967 pamphlet summarizes the research specialties. To demonstrate activity as well as competence in research fields, chairmen were requested to provide bibliographical references published within the last three years for each research area they claimed. These references are on file at the AIP

but will not appear in the published material.

196 PhD programs—163 physics and 33 astronomy—are included in the book, most of them with complete descriptions that take about two pages apiece. To aid advisors and prospective graduate students in comparisons among department programs, AIP reserved the right merely to list the institution, department name, and chairman's name and address if insufficient information was supplied. Strassenburg and Llano had to exercise this option only rarely although a few departments expressed a wish to be listed only.

University Ties with Institute for Defense Analyses Ended

While the American Physical Society grappled with the charge of too little involvement in public issues, a group of the nation's universities were faced with the charge of too much involvement in defense activities.

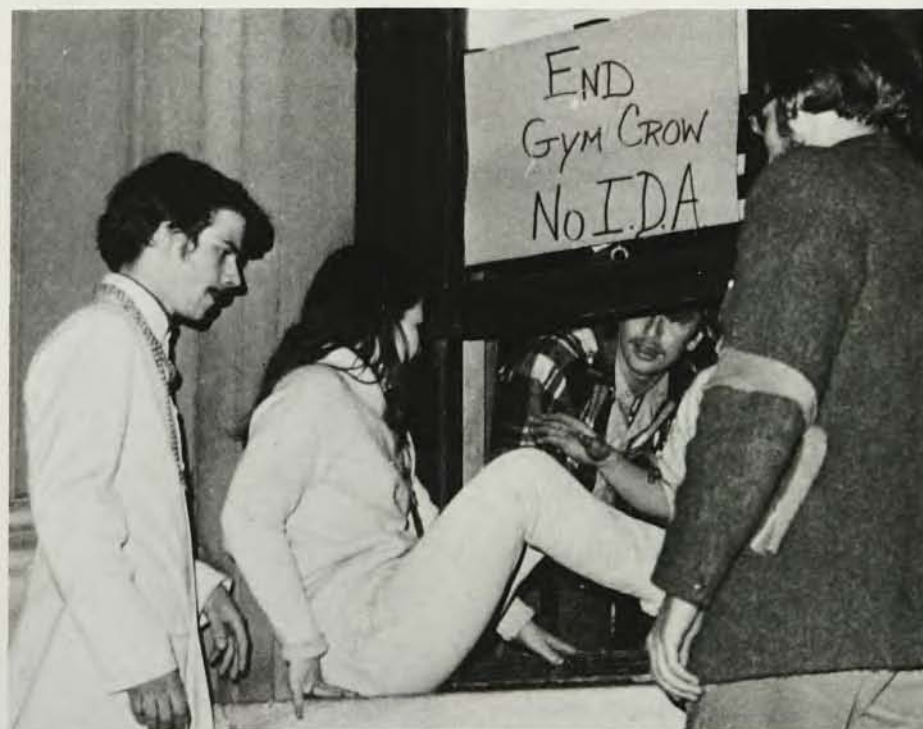
These 12 universities sponsored the Institute for Defense Analyses. Some have been buffeted by student dem-

In the master's section, 305 departments are included. Of that number, 234 programs are described and 71 are listed. Because of limitations on the size of the book, the descriptions of master's programs are rather brief, but the standard format enables comparisons among departments.

Unlike the earlier *Doctoral Programs*, this book is being produced at AIP expense without backing from the National Science Foundation. It will be sold, when ready, by the AIP at \$5.00 per copy. An announcement and order form will be sent to physics and astronomy departments to facilitate ordering.

onstrations, building seizures and faculty dissent. Under fire is university endorsement of war-related, highly classified research through sponsorship of IDA.

With two of the universities, Chicago and Tulane, already announcing their disassociation with IDA and others ready to do the same, the insti-



COLUMBIA STUDENTS SEIZED BUILDINGS in protest against school's role in Institute for Defense Analyses and use of Harlem park land for university gymnasium.

tute, at the prodding of the university sponsors, late in June decided to reorganize its corporate structure. The IDA trustees voted to end university representation as a requirement for trustee membership, effectively ending direct university sponsorship. Instead at least one third of the trustees will be selected from universities and at least one third from the general public, all acting as individuals, not representatives. The 22-member board of trustees includes physicists Robert F. Bacher, provost of Cal Tech, and Herbert F. York of the University of California.

Noting that the institute had been criticized as a "handmaiden" to the government and the Department of Defense, Norman L. Christeller, general manager, explained that the idea of university sponsorship was to ensure "that we do not become a handmaiden of the government."

The institute, now a dozen years old, is located in Arlington, Va., near the Pentagon. With a staff of more than 600, it handles research for the Department of Defense in a number of highly classified fields in which

physics plays a part, including weapons systems, tactical warfare, international security, undersea warfare and many other defense-oriented projects. This research is the normal workload of a Pentagon "think tank." The trouble is that IDA was established by universities and continued under university sponsorship. Members of the faculties and student bodies and even many administrators at these schools feel that a university has no business in undercover work, at least not in peacetime, and that the pursuit of knowledge by a university must be free and open.

Reaction to university involvement in war research through IDA has been a factor in a number of campus demonstrations. The most vocal were at the University of Chicago and Princeton last fall and at Columbia in April. Faculty committees have taken up the question at these and other campuses and have come out in support of changes in university affiliation with IDA. Committee recommendations ranged from outright disassociation to a modification of the IDA structure, the route IDA finally adopted.

Because of its strong ties to the Department of Defense, which supports

about 95% of all IDA contract research, and its 12 years of research experience, IDA is expected to continue relatively unchanged. Its 625-member staff includes 320 professional scientists and engineers, of whom 15% are in the physical sciences. In addition services of several hundred other scientists are regularly tapped. These on-call scientists include a group of about 40 who have agreed to give an important amount of their time to the IDA Jason division, which conducts special studies on such problems as antiballistic-missile systems and the Vietnam war for the Advanced Research Projects Agency. Physicists are well represented in Jason. Marvin L. Goldberger (Princeton) and Howard W. Lewis (University of California) have served as chairmen of the Jason steering committee, recent members of which have included Murray Gell-Mann, (Cal Tech), Norman M. Kroll, (University of California), Samuel B. Treiman (Princeton) and Kenneth M. Watson (University of California).

The universities that sponsored IDA were California, Cal Tech, Case Western Reserve, Chicago, Columbia, Illinois, MIT, Michigan, Penn State, Princeton, Stanford and Tulane.

Budget Cuts Push British Science toward Industry

Science in the UK, although threatened, will not be crippled by a shortage of money. The present state of the British economy, the import-export gap and devaluation of the pound have led to fears of severe cutbacks in the funding of pure science. PHYSICS TODAY recently spoke to the directors of Harwell and Culham, two of the largest government-supported laboratories in Britain, and found them optimistic that their programs will continue and that industrial backing can be found to supplement dwindling support by the government. We also visited the Rutherford Laboratory, which dips into a different government purse and whose deputy director reported an easier situation.

Harwell. We talked to Walter Marshall, 36-year-old director of the Harwell Laboratory of the UK Atomic Energy Authority, over a sandwich lunch in a London pub and continued our conversation during a post-prandial stroll in St. James's Park. Harwell, near Oxford, is the center of Britain's nuclear-energy research and has programs concerned with neutron beams and radiation damage. UKAEA is fi-

nanced by the Ministry of Technology, whose minister, Anthony Wedgwood Benn, ordered a cutback at Harwell of 4% annually. This reduction has been maintained for the last three years and probably will continue for two more years. Resignations of Harwell pro-

fessional staff normally amount to 8% each year; only half this number are being replaced while the squeeze is on.

Meanwhile Marshall is actively seeking and obtaining financial support for some of his programs from



MARSHALL



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