state & society

Teem expects AEC research to pass smoothly to ERDA

In January John M. Teem, assistant general manager for physical research, will mark his second anniversary with the Atomic Energy Commission. From his vantage point, these two years have been a time of change. Last summer Teem witnessed and presided over a major reorganization of the Division of Physical Research, the largest supporter of physics R&D in the US. Now he confronts the possibility of still another reorganization when the Energy Research and Development Administration (whose establishment appears imminent) takes over AEC's energy R&D programs.

In a recent interview with us Teem described this period as exciting, despite the state of flux—or perhaps because of it. In terms of the scientific results and promise, he believes this has been one of the most exciting times in the last five or ten years. He was confident that the high degree of continuity in physics research now supported by his division would be maintained under ERDA. In connection with possible changes ERDA might bring, Teem also talked about the frontiers of high-energy physics, the US position in high-energy physics and the need for long-range commitments for the future of the program, particularly for new facilities.

Reorganization. Last year the Division of Physical Research was restructured into four new categories: high-energy physics, nuclear science, materials sciences and molecular sciences, with the molecular-sciences program containing mathematics and computer sciences. Teem, in his assistant general manager position, remained head of the Division of Physical Research and also assumed responsibility for overseeing the Division of Controlled Thermonuclear Research.

TEEM

Teem noted that the program structure has been reorganized and there have been important new concentrations of effort, but "we have not completely changed the basic-research program because continuity is very important to basic research. The programmatic division into what I call 'domains of matter or interaction' provides the framework for handling the kind of physical research we need for many kinds of energy programs," Teem said. "And while we weren't exactly anticipating ERDA in our reorganization last year, we did have in mind the need for reorienting the physical research in the context of broad energy R&D responsibilities such that the ERDA might have."

Two versions of ERDA legislation—one passed by the House and one by the Senate—now have to be resolved by a Congressional conference committee, but under both bills ERDA would be made up of the AEC's energy R&D programs along with the Department of Interior's Office of Coal Research, the Bureau of Mines "energy centers," and the NSF R&D on solar heating and cooling and geothermal power (see PHYSICS TODAY, September 1973, page 77).

Although he does not foresee major program changes in the physical-research division under ERDA, Teem admitted that there would be some redirection of current research. "I see a need for an expanded program for the materials sciences and also a significant expansion in the molecular sciences," Teem said. "If the total program is fixed, this would obviously mean some changes in balance. But I don't feel there should be a trade-off between high-energy physics and other basic-research areas.

"We're in a very difficult time now in

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US government foresees 800 physical-science job openings

The US federal government anticipates over 800 openings for bachelor through PhD scientists in its various agencies for fiscal year 1975 in physics and closely related disciplines. PHYSICS TODAY spoke with officials in the US Civil Service Commission and other governmental agencies to determine where the largest number of scientists in physics, health physics, astronomy and space science, geophysics, metallurgy and general physical sciences were needed. Salary ranges for these positions are from approximately $8500 for new college graduates to over $18 500 for PhD researchers.

Where are they employed? Of the 26 400 physical scientists employed at the professional level in 1973, 12 000 fall into the six categories mentioned above. The largest portion of this group works as civilian employees of the Department of Defense with other large employers being (in decreasing order) NASA, the Department of Commerce, the Department of the Interior and the Atomic Energy Commission. Table 1 gives a detailed breakdown of where the professional personnel in the six listed groups work.

In what capacity? Less than half of federal physical-science personnel were engaged in research and development as their primary activity in 1971 according to an NSF survey. More were involved in data collection, processing and analysis than in development alone (see Table 2). The fourth largest segment, including nearly a tenth of the employees, is engaged in management activities. Involving scientists in managerial positions poses problems, according to several officials with whom we spoke. Reginald Jones, special assistant to the deputy administrator for management of the Agricultural Research Service outlined the difficulties and the possible remedies. Manage-

Table 1. Professional employees in the federal government, October 1973

	Physics	Health physics	Geo-physics	Astron-omy	Metal-lurgy	General physical sciences
Navy	2314	72	94	78	197	428
Army	1206	33	13	—	136	940
Air Force	683	3	7	17	55	221
Commerce	603	4	31	3	28	727
EPA	28	19	—	—	1	426
Interior	127	6	172	—	127	263
NASA	315	5	—	474	58	469
HEW	82	84	—	—	—	43
AEC	74	169	3	—	17	200
VA	39	6	—	—	—	4
USDA	47	3	—	—	—	40
DOT	40	2	—	—	3	70
Total	5558	406	320	572	622	3831

Data from National Science Foundation

Table 3. Estimated needs for new professional personnel in the federal government, FY 1975

	Physics	Health physics	Geo-physics	Astron-omy	Metal-lurgy	General physical sciences
Navy	111	3	10	5	16	7
Army	18	—	—	—	6	12
Air Force	15	—	—	—	—	—
Commerce	44	—	—	—	4	38
EPA	—	4	—	—	—	263
Interior	4	—	93	—	15	28
NASA	—	—	—	30	3	4
HEW	6	7	—	—	—	2
AEC[1]	20	11	18[2]	—	2	—
Totals[3]	217	23	103	35	44	375

[1] Data from AEC personnel office. All other data from the US Civil Service Commission.
[2] Includes geology
[3] Nationwide totals excluding AEC and other excepted agencies.

Table 2. Work activity in physical sciences, 1971

	(percent)
Research	34.1
Development	14.4
Test and evaluation	7.7
Design	1.1
Installations, operations, and maintenance	1.3
Data collection, processing and analysis	17.8
Natural resource operations	0.4
Planning	2.3
Management	9.3
Other	11.6
Total	100.0

Data from National Science Foundation

ment work has often been considered a chore rather than a creative position. A program manager may often feel he is not receiving proper recognition for his efforts, Jones feels, and a scientist in such a position can easily lose touch with developments in his research field. A scientist can advance in stature without going into management; why should he take the step out of research?

The problem, then, is to make management jobs more attractive for scientists. Possible answers, Jones said, are to make management more of a discipline in itself, including emphasis of its creative aspects, such as the role a science manager plays in guiding the direction of research. It would be desirable to allow scientists to try management posts initially for a short period, such as a summer or for a year or two, to allow the scientist the option of returning to his research field should he want to.

Needs for new personnel. Estimated needs for scientific personnel for fiscal year 1975 are shown in Table 3. The figures cover Civil Service grades GS-5 through GS-15, which approximately span the range from new bachelor's degree holder to experienced PhD scientist. Starting salaries for these grades are approximately $8500 for GS-5 (bachelor's degree holder), $12 900 for GS-9 (master's degree level) and $18 500 for GS-12 (PhD level). The number actually hired may differ substantially from the projections in Table 3, depending, among other things, on budgetary considerations, but they nonetheless are a good indicator of where the most physics personnel are needed. Employment in all agencies listed except the AEC is handled by the Civil Service Commission, which tests and evaluates prospective federal employees. The AEC is an excepted agency (it hires personnel without use of the Civil Service) and seeks scientific employees for two major activities: to determine the priorities, levels and directions for nuclear and non-nuclear research and development programs funded by the AEC, and to do intensive technical reviews of proposals for nuclear installations and materials that must be licensed through the AEC.

Potential applicants for federal employment can get specific information from the US Civil Service Commission for agencies it serves. For the AEC, details can be obtained from Coordinator of Recruitment, US Atomic Energy Commission, Washington, D.C. 20545.

—RAS

Voronel leaves Moscow to avoid arrest

Soviet physicist Alexander Voronel was told by police authorities on 15 September that he would be charged with "parasitism" if he did not find employment within 15 days. Voronel, who has petitioned the Soviet government unsuccessfully for permission to emigrate to Israel, left Moscow on 23 September to avoid arrest, according to information communicated to us by Edward Stern (University of Washington). Voronel was thrown out of his job when he sought to emigrate, and he has been unable to find employment because he is overqualified for jobs he can legally hold and because of his blacklisted status. In July, he was arrested for his involvement with the aborted International Seminar (see PHYSICS TODAY, August, page 64).

In a related development, friends of Voronel have managed to submit a manuscript of his (a review of thermal measurements and critical phenomena in liquids) to *Reviews of Modern Physics* and it was accepted for publication. After a translation was prepared and editorial revisions made, according to Bertrand Halperin, associate editor, the manuscript was returned to Voronel for his approval, but RMP editors have not been able to receive his comments.

NSF Materials Research Division reorganizes

The Division of Materials Research of the National Science Foundation has undergone reorganization effective 1 July. Where formerly there were several programs and one section, the programs have been organized into two new sections, making three in all. According to division deputy director Howard W. Etzel, this shift allows for more staff required to meet the increased work load and provides the division with a more typical NSF organizational structure.

The three sections are

- Solid-State Sciences. The section head is Lewis H. Nosanow, former chairman of the University of Florida physics department. Three programs