financial support, not only to supplement federal funds but, ultimately, to replace them.

Because the funds will be given selectively, the method to be used in choosing the recipient institutions has naturally intrigued university administrators. The mechanism is really quite similar to NSF apparatus for distributing other kinds of grants. Basic staff work is done by NSF personnel, and final approval of grants is to be given the National Science Board. The key task of recommending which institutions be given priorities among the list of those eligible—many more are expected to be called than chosen—will be performed by a scientific committee made up of distinguished private citizens selected for their knowledgeability and disinterestedness. The recently announced members of this committee are Carl W. Borgmann, Ford Foundation; Robert R. Brode, University of California, Berkeley; Dale R. Corson, Cornell; Colgate W. Darden, Jr., Norfolk, Virginia; James D. Ebert, Carnegie Institution of Washington; William B. Harrell, University of Chicago; Lyle H. Lanier, University of Illinois; and John R. Pierce, Bell Telephone Laboratories.

The presence on the panel of representatives from the "top 20" institutions serves notice that these institutions should not expect to participate in the program. The committee is scheduled to hold its first meeting in late January and make its first recommendations in time for the National Science Board to act at its March meeting. It is understood that the maximum for grants will be $5 million.

If the history of the Ford challenge grants is any criterion, a major benefit of the new NSF program to every institution which applies, whether successfully or not, will be the experience of taking stock of its situation and thinking systematically about its future, salutary activities in which universities don't overindulge.

As for what criteria will be applied in selecting among universities which see themselves in an in-between category, NSF director Haworth gave some hints last May in testimony before the House Science and Astronautics Committee's subcommittee on science, research, and development.

Said Haworth, "Well, it is a combination, of course, of a lot of things. Very important is leadership. Leadership at the university level, and leadership at the departmental and school level, the desire to improve, the backing of the public through legislation and so forth if it is a public institution, and of its governing board, in matters such as income.

"But I think the two most important things are desire and leadership.

"Then, of course, little kernels of competence, existing competence, are important. Beginning right after the war, when we wanted to get results, we went to the very best places to get research and development done. We have been broadening our base all this time. There are many more good places now than there were 15 years ago. Just as we went at that time to the best places for immediate results on research, then tried to build up greater competency in more places, we will go next to the newer centers of competence.

"It is very encouraging to me to talk to the university administrators. I have talked to a large number of the leaders of places that would not be mentioned in the magic first 20, or whatever the number is that is talked about so often, who are really on fire to improve their situations, who have ambitious plans, who are getting local support—and by 'local' I mean from their State government if it is a State institution, or private sources if it is not—and who really see that it is important to them and it is important to the country that these places develop. They are scattered all over the country, and there is a great deal of desire and real earnest effort being put in. I think it is very encouraging."

It should be remembered that NSF has talked about geographical distribution in only the most general way and has certainly made no commitment to any sort of regional equalization policy in distributing the grants. Creation of new centers of excellence and an even geographical distribution of funds are by no means necessarily compatible. Given the limitation on funds and the condition of universities in some areas, a policy of fair shares for all in creating new centers of excellence would be as efficacious as carrying through Solomon's suggestion of cutting the disputed baby in half.

This is not to say that the federal government regards some institutions as outcasts. The new higher-education facilities act, for example, provides for distribution of funds through state authorities to both public and private institutions on the basis of population, and there is strong pressure within Congress for a "formula distribution" of any new funds.

"Scatteration," as it has been called, however, does not seem a real threat to the research grant system. The edifice of federal support for science is founded on the principle of the purchase of services by mission-oriented agencies in pursuit of their missions. The National Science Foundation has a somewhat more flexible policy than other agencies because of its responsibility for science education as well as research, but the rise of the institutional grant does not foreshadow the decline of the project system. As Haworth said at the hearings last May, "I think our regular programs must continue to use quality as the primary criterion. For one thing we get better results that way. For another thing we must not allow the places that are already good to deteriorate. That would be disastrous."

The federal grant system, however, is obviously undergoing a period of adjustment. The institutional grant can be viewed as a product of the fundamental tension in the government-university relationship created by the demand on the part of the universities for federal aid with the fewest possible strings attached, and by the agencies' insistence on a full accounting and fair return on the taxpayers' money. The search for mutually desirable financial arrangements will continue, and it is reasonable to predict that, if the federal government is to succeed in helping to create new centers of excellence in science, it will be necessary somehow, as the private foundations found, to nurture excellence in whole universities.—JOHN WALSH

Announcements

Howard Simons, science writer for the Washington *Post*, and **Jeremy Bernstein**, associate professor of physics at New York University, have been named to receive the 1964 AAAS-Westinghouse Science Writing Award and $1000 honorariums.

Simons, who was the 1962 recipient, becomes the second person to win the award twice. Simons won this year's newspaper competition for three stories: on Samos satellites, on cybernetics in Russia, and on studies of the planet Jupiter.

Bernstein won the magazine writing prize for his two-part *New Yorker* magazine series titled "The Analytical Engine," describing the history and functioning of computers.

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Honorable mention for newspapers goes to Ronald Kotulak, science writer for the Chicago *Tribune*, for a series on plasma physics. The judges reported that, because of the high quality of the magazine entries, they were unable to agree on an honorable mention award in that category.

The awards were established in cooperation with the Westinghouse Educational Foundation in 1946 to help improve the quality of science writing for laymen and to stimulate public interest in and understanding of science.

The **University of Wisconsin** has announced the establishment of a 4-year experiment designed to provide university courses and credits for engineers unable to spend lengthy periods on the Wisconsin campus. The project is scheduled to begin in February, and will enable Wisconsin engineers to update their professional education and earn a master's degree while on the job. The university's educational facilities are being made available under its Articulated Instructional Media program. (Edward Obert, chairman of the mechanical engineering department at the University, Madison 53706.)

Rice University has announced plans for a 10-year expansion and development program. Plans call for an increase in the faculty from 225 to almost 400; a student body increase from 2300 to 4000; tripling the annual operating budget from $6 million to $19 million; and addition of $33 million in capital improvements and endowment, which are to include $21 million for physical facilities, and $12 million for endowed professorships and additional faculty salaries. Also planned is the establishment of a program of Latin American studies. Included in proposed projects to strengthen and expand Rice departments is one to enlarge the biology department with the development of studies in biochemistry, biophysics, and cell biology.

Meeting Notes

Rubber chemistry and technology will be discussed at the American Chemical Society's division of rubber chemistry meeting, scheduled 4–7 May, in Miami Beach. General papers in the field and papers dealing with the chemical and physical testing of rubber are being solicited. Deadline for eight copies of a 200-word abstract: *25 January*. (G. N. Vacca, Bell Telephone Laboratories, Murray Hill, New Jersey)

Atlantic City, New Jersey, will be the site of the **American Society for Microbiology**'s annual meeting, 25–29 April. Contributed abstracts on all phases of microbiology are being solicited. Abstracts must be submitted on ASM abstract forms. Deadline for submission: *6 January*. (R. W. Sarber, Executive Secretary, ASM, 115 Huron View Blvd., Ann Arbor, Michigan)

Grants, Fellowships, and Awards

The National Science Foundation will sponsor an Academic Year Institute in **Anthropology** for college and junior college teachers, at the University of Colorado during 1965–66. Participants will combine special Institute courses in cultural and physical anthropology with formal work in regular departments and will be eligible for the M.A. degree. Fifteen stipends of $3000, plus NSF dependency, book, and travel allowances are available. Applicants must be regular, full-time college or junior college teachers, with three or more years of teaching experience and regular teaching commitments involving at least one course in anthropology. Deadline for receipt of applications: *20 January*. (J. Kelso, AYI in Anthropology, Department of Anthropology, University of Colorado, Boulder)

Courses

The University of Maryland will conduct a seminar in **Analog Simulation and Engineering Analysis**, 25–29 January. The program is being offered in cooperation with the research and computation division of Electronic Associates, Inc., and is designed to give scientists and engineers a knowledge of the analog computer and its applications. The level of instruction will be at first year graduate work, and requires a bachelor's degree in engineering, mathematics, or a physical science, including one semester, or the equivalent, in differential equations. Laboratory sessions will provide students with various programming problems and opportunities to work with EAI TR-20

and TR-48 analog computers. A $200 registration fee includes all program participation costs, except transportation, lodging, and food. (Clive C. Veri, Conference Coordinator, University of Maryland, Division of Conferences and Institutes, College Park 20742)

The University of Saskatchewan, Saskatoon, Canada, will sponsor a summer course in **tissue culture**, scheduled 16 June to 19 July. It will focus on the basic principles of mammalian and plant tissue culture and the application of cell culture methods to cell physiology, cytology, biochemistry, virology, genetics, radiobiology, and oncology. The course is intended mainly for individuals with masters' or doctors' degrees; however, other applicants will be considered. The fee for the course will be $125, and university residence accommodations will be available at $6 per day. Deadline for applications: *1 February*. (S. Fedoroff, Department of Anatomy, University of Saskatchewan, Saskatoon, Canada)

Scientists in the News

John R. Overman has been named associate director for collaborative research at the National Institute of Allergy and Infectious Diseases, National Institutes of Health. He was formerly professor of microbiology at Duke University Medical Center.

Guy Williams-Ashman, formerly professor of biochemistry at the Ben May Laboratory for Cancer Research at the University of Chicago, has been named professor of reproductive biology at the Johns Hopkins University School of Medicine. His appointment is the first in the Brady Laboratory for Reproductive Biology, now being established at the university. He will be responsible for research on basic chemical aspects of reproductive organs and processes. Williams-Ashman will join the division of urology of the department of surgery, and will also serve as professor of pharmacology and experimental therapeutics.

Robert T. Orr has been named associate director of the California Academy of Sciences, San Francisco. Orr retired last spring as professor of biology at the University of San Francisco. He had also served the Academy as curator of the department of ornithology and mammalogy.