

# News of Science

## Bohr Wins \$75,000 Atoms for Peace Award

Niels Bohr, Nobel prize winner and since 1920 director of the Institute for Theoretical Physics at Copenhagen, Denmark, has been named the first winner of the \$75,000 Atoms for Peace Award. Bohr, one of the founders of modern atomic theory, was the unanimous choice of the board of trustees of Atoms for Peace Awards, Inc., according to its chairman, James R. Killian, Jr., president of Massachusetts Institute of Technology. Killian said of Bohr: "By his example he has inspired scientists everywhere to seek out science as an instrument for human welfare."

In a telegram to Killian, President Eisenhower commended the awards committee on its choice. The telegram said, in part:

"Seldom has a man dedicated himself more single mindedly to the search of knowledge for the benefit of mankind than has Professor Bohr in his half-century as a scientist and teacher. The distinction you have conferred on him will offer hope and encouragement to men everywhere in the world who hold that science can be made to serve the hopes of mankind and help bring peace to the world."

Professor Bohr won the Nobel prize in physics in 1922 for theoretical work on the structure of the atom and the basic concept of quantum physics. He played a



Niels Bohr

role in the development of the atomic bomb.

The Atoms for Peace awards were established in 1955 through a grant of \$1 million by the Ford Motor Company Fund. The awards are intended as a memorial to Henry and Edsel Ford.

## Sloan Foundation Basic Research Program

With the approach of the second anniversary of the Sloan Foundation's Program for Basic Research in the Physical Sciences, first announced by Alfred P. Sloan in May 1955, it seems useful to review the plans and procedures of the program. The objectives of the program are to stimulate a greater national effort in truly fundamental research and to emphasize some of the conditions that are essential for such research. Those who designed the program recognize the need for focusing much more attention in the future upon the capability or creative potential of the investigator and upon the importance of giving to him the maximum degree of freedom if he is expected to work on the fringes of man's knowledge.

Perhaps the most nearly unique feature of the present program lies in the fact that research projects are neither solicited nor supported, and no mechanism has been established for the evaluation of research proposals. Instead, unencumbered grants are made available to selected individual scientists who satisfy certain conditions as outlined below. It is in the selection of these scholars that the foundation and its advisers exercise their major responsibility.

*Who will be supported?* Universities no longer hold a monopoly in the field of pure research. A few industrial laboratories have become world famous through their contributions to fundamental knowledge in the physical sciences. Traditionally, however, investigations directed toward a more profound understanding of natural phenomena have found their home in universities. Consequently, only persons who hold regular faculty appointments in recognized colleges and universities, and whose re-

search interests lie in the basic physical sciences, are eligible for support under the Sloan program. The term "basic physical sciences," as employed here, includes: chemistry, mathematics, physics, and closely related disciplines (that is, astrophysics, geochemistry, and so forth).

In making selections, preference will be given to younger people who are in the early stages of their academic careers. However, occasionally a research grant will be made available to a more mature faculty member when an unusual situation arises. Although the program is essentially national in character, foreign scholars and particularly those associated with Canadian and Mexican institutions are not excluded.

Those responsible for selecting recipients will address themselves primarily to three questions: (i) In the opinion of distinguished scientists, has the candidate demonstrated real potential as a creative investigator? (ii) Do his accomplishments, to date, suggest promise of unusual opportunities for professional growth? (iii) Are his efforts to do fundamental research of his own choosing hampered by a lack of unencumbered funds?

*How are candidates found and selected?* The foundation has no intention of merely playing a judicial role in evaluating prospective candidates whose names are brought to its attention. It accepts the responsibility of *finding* persons considered to be most worthy of support.

To this end, a Program Committee, whose membership will ultimately be rotated, has been established. Five internationally known scientists—two chemists, two physicists, and one mathematician—constitute the present committee: A. C. Cope, of Massachusetts Institute of Technology; J. B. Fisk, of Bell Telephone Laboratories; K. S. Pitzer, of the University of California, Berkeley; Frederick Seitz, of the University of Illinois; and A. W. Tucker, of Princeton University.

This committee serves the foundation in a dual capacity. In the first place, its members, through their extensive associations with the nation's scientific leaders, aid in the search for potential candidates. Second, the committee serves in an advisory capacity and makes recommendations, through the program administrator, to the foundation's trustees.

Usually, nominations of candidates will be made by one of the nominee's own academic colleagues who is acquainted with his research ability and potential for growth; however, letters of nomination should not be restricted to members of the nominator's own departmental faculty or university. Such letters and other pertinent correspondence

should be addressed to Dr. Richard T. Arnold, Program Administrator, Basic Science Program, Alfred P. Sloan Foundation, Inc., 630 Fifth Ave., New York 20, N.Y.

Faculty members receiving grants under this program are designated as Alfred P. Sloan research fellows. The foundation does not wish to infringe upon the academic prerogatives of its research fellows and, as a matter of policy, agrees that they should (i) choose, without approval, the scientific problem for investigation, (ii) direct its progress, and (iii) select both the appropriate time and place for the publication of results.

Perhaps the reader has already concluded that these grants have somewhat the aspect of an award. While this is true, it should be stressed that the grants are not rewards for past achievements, but are given in the hope that they will help broaden the base of pure research and stimulate an even greater degree of creative thinking in the fundamental sciences.

*How are grants negotiated?* All grants are negotiated with the appropriate college or university. The funds thus made available are spent at the discretion of the scientist being supported but in accordance with the established policies of his institution. All equipment and supplies purchased under these grants become automatically the property of the institution with which the grant is negotiated. In addition, the foundation attempts to defray, in a realistic manner, indirect costs to the institution that accepts the grant.

Typically, initial grants will be made for a period of 2 years, and these may be continued for a year or two. In order to prevent having funds "spent under pressure," as an alternative to returning unexpended balances to the foundation, an effective scheme has been devised whereby unspent and uncommitted balances remaining on the terminal date of a grant may be carried forward.

*Size and growth of the program.* At the outset in 1955, a program was envisaged which would ultimately have an annual value of approximately \$500,000. During the 2-year period 1955-57, some 75 grants were negotiated in the amount of approximately \$650,000.

In the course of the first year's operation, however, it became increasingly apparent that the need for unencumbered research funds in support of highly talented individuals doing fundamental research warranted a substantial increase in the size of the program. This matter is currently under discussion in the foundation. For the year 1957-58, 76 grants, totaling some \$600,000, have been approved by the trustees.

Money alone, in spite of the current

need for much more of it, will not make a university great. Indeed, unless certain basic conditions obtain its effect can be deleterious [P. E. Klopsteg, "How shall we pay for research and education?" *Science* 124, 965 (16 Nov. 1956)].

In formulating policies for this program, an attempt has been made to make funds available in such a way as to preserve the integrity of educational institutions and to respect the academic prerogatives and freedoms so essential to a scholar if his research efforts are to be commensurate with his innate capacity to do creative thinking. The responses to the program, to date, have been most gratifying and reassuring.

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### N.Y. Experiment Station Anniversary

The 75th anniversary date of the organization of the New York State Experiment Station at Geneva was 1 Mar. A unit of Cornell University and the State University of New York, the station plans to celebrate the anniversary by special events throughout the year. The station was among the first half-dozen agricultural research institutions established with public support; now every state in the Union has at least one experiment station.

### Australian Physicians Plan Visit to Chinese Mainland

Leonard Cox, an Australian neurologist, who is also an authority on Chinese ceramics, visited China last May. He is seeking to arrange a visit of leading Australian physicians for an inspection of Chinese medical facilities in Peking, Shanghai, and Nanking. Cox reports that many young Chinese physicians desire graduate work in English-speaking countries. The Chinese research institutes are active, particularly in the field of tropical medicine. Cox also reports that the Peking Union Medical College Library remains intact, and is widely used.

Among those who may take the spring trip from Australia to China are the following, all from Melbourne: John Lindell, chairman of the Victorian Hospital, Melbourne; Peter MacCallum of the Cancer Council; S. Sunderland, dean of the Melbourne Medical School; T. Travers, ophthalmologist; Clyde Fitts, internist; Charles Osborn, surgeon; Howard Williams, pediatrician; and S. Houseman, anesthetist. From Canberra, Frank Fenner, professor of microbiology, is expected to be included. A group

from Sydney will consist of Edward Ford, dean of the faculty of medicine, University of Sydney; I. D. Miller, neurologist; Eric Clarke, physician; J. Chesterman, gynecologist; and H. C. Barry, orthopedic surgeon.

### Synthetic Penicillin

The chemical synthesis of penicillin, which for years has been one of the most baffling problems in chemistry, has been accomplished at Massachusetts Institute of Technology by John C. Sheehan, professor of chemistry, and K. R. Henery-Logan, research associate. Ten new kinds of the synthetic penicillin are now being tested for possible medical use. While the new chemical method probably will not be economical enough to compete with the established fermentation process by which penicillin is derived from molds, it is hoped that new forms will prove effective against disease organisms now resistant to natural penicillin and against a wider variety of infections. New penicillins might also have less tendency to produce allergic reactions.

The penicillin molecule is not an unusually complex one. Similar molecules, such as those of quinine, morphine, cortisone and sucrose, had yielded to synthesis. But the penicillin molecule is unstable and disintegrates easily—especially at one point in the process.

During World War II, it is estimated a thousand chemists worked in 39 laboratories in the United States and Great Britain in the attempt to synthesize penicillin. One group did succeed in producing a microscopic quantity but the process was not a methodical one and practical production was out of the question. At that time, the structure of the molecule was not thoroughly understood.

Sheehan undertook the task in 1948, and, with the help of graduate and post-doctoral students, continued the laboratory work for nearly 9 years. Final results have been announced in the 11 Mar. issue of the *Journal of the American Chemical Society*.

The Sheehan process employs reactions and technology which are expected to be useful in solving other chemical problems. It consists chiefly of a series of reactions at room temperature or below. The crucial step occurs when a carbon atom is bonded to a nitrogen atom, completing the structure of the final product, phenoxymethylpenicillin, which is known as penicillin V, the antibiotic which is commonly administered by mouth.

The research has been aided financially by Bristol Laboratories of Syra-