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.

RICHARD T. ARNOLD
Alfred P. Sloan Foundation, Inc.
630 Fifth Avenue, New York, N.Y.

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 MacCallun 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 postdoctoral 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-