Dr. Sheehan Will Be Honored For Work On Penicillin And Peptides

By Dave Nickles

One of the major contributions to organic chemistry and medical research was made two years ago, when Dr. John C. Sheehan, a professor of organic chemistry, and his associates were successful in producing a method for synthesizing penicillin. Prior to this time, many scientists believed the synthesis of penicillin to be impossible, as it required the isolation of an active ingredient. Although the penicillin molecule is not complex (in fact it is similar to thymol and succinic acid, both of which have been artificially produced), it is unstable and will break down if the usual methods of the organic chemistry laboratory are used.

During World War II, the American and British governments initiated a crash program to determine the structure of the penicillin molecule and to synthesize it for military use. Although a thousand chemists were involved at a cost of $20 million, the project was only partially successful. The structure method for its synthesis was published in 1945.

In 1948, aided by graduate and post-doctoral students, Dr. Sheehan undertook this problem of synthesizing penicillin. He felt that it was a challenge which would benefit both the scientific and humanitarians endeavors. In 1950, this goal was achieved when ten varieties of penicillin were produced. New methods and techniques had to be evolved, using reagents which seemed at or below room temperature. The last ten steps were the most critical, especially the final one which involved the closing of an end tub. A few member rings. Penicillin V, one of the most important varieties of this antibiotic since it is administered orally, was produced in this manner. Although synthetic penicillin will probably never be able to compete economically with that produced by fermentation, its future lies with the new varieties which cannot be produced by the regular fermentation process.

Dr. Sheehan's first became interested in the field of organic chemistry when he took a course in it while he was an undergraduate at Battle Creek College. To him "it seemed to have the right combination of art and exactness." Then he went on to study at the graduate school of the University of Michigan, where he received his Ph.D. and M.E. He remained there as a research associate until 1941, when he joined the staff of the Merck laboratory. In 1946, after five years in industry, Dr. Sheehan joined the MIT chemistry department. He, his wife, and children now live in the suburbs of Boston.

Although Dr. Sheehan and his associates will continue in their study of penicillin, they are now investigating the structure of other antibiotics. Two substances which have recently been under investigation are penam, a complex peptide, and tetracycline, which is derived from another organism found in soil. The latter is unstable and will break down if the usual methods of the organic chemistry laboratory are used.

Results of Chess Club Tournament

Tickets are now available for the MIT Chess Club's rapid transit tournament which was held last Saturday in room 1-132. It was a round robin tournament with 15 seconds per move. The winners were: Earl Wagner '61 and Larry Wagner '60, tied for first and second; and Andrew Bowder (grad.) third.

Saturday afternoon, Feb. 28, the club will play the Boston high school alumni in a 20 board team match. If anyone is interested in playing in this match they should sign up at the regular club meeting, Wed., at 5:00 p.m., in room 1-132.

The Mass. Open Chess Championship will be held in Boston during the week-end of Feb. 28. Anyone that is interested should contact Larry Wagner, Baker 21B, for details.

Dr. Sheehan will be honored for his work on penicillin and peptides when he receives the $3,000 A.C.B. Award for Creative Work in Organic Chemistry.

Due to the Washington's Birthday Holiday on February 20, "The Tech" will not publish on Tuesday, February 24. The next issue will appear on Friday, February 27. Happy weekend.

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