

Chemists Discover New Ways Of Producing Miracle Drug

Just as it was radium in 1900 and the sulfa drugs in 1940, the "miracle" everyone is talking about today is penicillin, a product of common mold found on old cheese and damp bread. It not only promises salvation for many hopeless infections in war and peace, but may be the forerunner of a whole group of new wonder drugs.

Night and day a staff of 38 chemists, bacteriologists, and other technicians from the College's School of Chemistry and Physics and School of Agriculture worked hard to discover new ways to increase the production of penicillin, according to Herbert D. McAuliffe, assistant professor of bacteriology.

These men, headed by Frank C. Whitmore, dean of the School of Chemistry and Physics, not only made penicillin but also discovered new methods of purification and increasing production. Their findings went daily to the 21 penicillin-producing plants approved by the War Production Board, and have helped to increase the production many-fold. This means that the healing drug now goes not only to battle fronts, where it is performing medical miracles, but also to hundreds of civilian doctors, who 18 months ago appealed for it in vain.

The long story of how penicillin finally reached the doctor's hypodermic and the newspaper headlines began in 1929 when Dr. Alexander Fleming, professor of bacteriology at St. Mary's Hospital, London, isolated the particular product of Penicillium which he called penicillin.

Dr. Fleming, while carrying out a research project, set aside on a laboratory bench a number of culture plates. Upon examining them, he found that a mold had settled on the medium, which was a food substance. "Probably blaming himself for carelessness he almost destroyed the infected plate, when he noticed that in the vicinity of the mold the bacteria had not grown, but showed better—and finally normal—development with increasing distance from the mold.

Reasoning that some matter was produced to inhibit or actually kill the bacteria, Dr. Fleming transferred some of the mold to other plates and found he could repeat the effects. So he described and named his discovery.

Despite the exhaustive nature of his study which established beyond all doubts the anti-bacterial potency of penicillin, Dr. Fleming had not succeeded in extracting the matter from the broth in which it had been formed.

It was this problem of extracting penicillin in purified form to which Dr. H. W. Florey and his collaborators at Oxford, assisted by a grant from the Rockefeller Foundation in 1936, turned their attention. The difficulty of this work may be realized by the fact that it was not until 1939 that Dr. Florey was able to obtain enough material of sufficient purity to put it to clinical use.

In a history making paper in 1940, Dr. Florey revealed that he had devised methods of obtaining a considerable yield of penicillin. In addition to this he demonstrated that in infected wounds where sulfanilamide drugs seemed to have little beneficial action, the activity of penicillin was influenced only to a minor extent by the number of bacteria present.

The years from 1941, when the Rockefeller Foundation provided a traveling grant for Dr. Florey and his associate, Dr. N. C. Heatley, until 1945, when penicillin could be manufactured commercially, mark a panorama of extremely intense chemical, medical,

and bacteriological research. Dr. Robert Coghill, head of the fermentation division of the Northern Regional Research Laboratory, Peoria, Ill., was so untiring in his efforts to educate those engaged in penicillin production that he has been acclaimed "father of penicillin industry."

The tempo of work was quickened by the entry of the United States into the war, Dec. 7, 1941—and by the discovery that the yield of the miracle drug could be increased 20 times (and later 100 times,) by better methods of culturing the mold.

By July, 1943, penicillin was being produced by 21 commercial companies, but purification was still a problem. When the mold grows on the medium, it produces many waste products which occur as impurities along with the penicillin. The War Production Board then looked to research groups like the one at the College for help in the improvement of purification methods.

Growing the mold in the biological department and purifying it in the chemistry department was routine work; searching for new mediums which would contain fewer impurities was new, vital research. The group looked for a medium that would be easier to purify; trial followed trial—probably thousands of them—until their search was ended. The new mediums contain only very simple chemical substances and the recovery of penicillin from the fermented broths has been greatly simplified.

By the time the WPB contract expired June 30, 1945 the College had published 150 reports that had been distributed to commercial manufacturers of penicillin all over the country.

The work done at the College now concerns mediums and assaying, a process by which the exact amount of penicillin is determined during each of the many processes in purification.

Penicillin was a scarce item 18 months ago; however, as a result of research at the College, as well

Placement Picard Interviews

George N. P. Leetch, director of the College Placement Service, has announced that Mr. R. F. Picard, supervisor of industrial relations, Bakelite Corporation, Bound Brook, N. J., will be on the campus Tuesday to interview October and February graduates in chemical engineering, chemistry, commercial chemistry, physics, and mechanical engineering. Arrangements for interviews should be made as soon as possible in 204 Old Main.

Visiting Deans Study In Education Workshop

Approximately 30 college and high school deans of women, and women preparing to become deans, have attended special courses this week in the Education Workshop.

Dr. Eunice Hilton, dean of women at Syracuse University, has headed the program of courses training women to deal with the problems of high school and college girls. The one-week course was a part of the workshop being conducted during the summer session by Miss Mary Jane Wyland of the education department.

On Wednesday afternoon, a group of the students of "deanship" visited Atherton Hall and were conducted through it by the various hostesses of the dormitory. In the evening some of them visited White Hall and sat in on the WSGA meeting.

Although the majority are from Pennsylvania, a number of the women attending this course have come from other states. There are two women from Kentucky, one from Massachusetts, one from New Hampshire and several from other sections.

All former students from undergraduate centers are invited to attend the reorganization meeting of the Center Campus Club, 10 Sparks, at 7:30 p. m. Tuesday.

as at several other colleges and universities, production of the "miracle drug" has not only satisfied increased demands, but has left ample amounts for civilian use.

Calendar

- Today**
Sabbath Eve Services, Hillel Foundation, 8:30 p. m.
- Tomorrow**
PSCA Cabin Party, First Semester Club, meet back of Old Main, 2 p. m.
- Sunday**
Chapel, Rev. Raymond D. Kistler, president of Beaver College, 11 a. m.
GSO Play Day, 505 E. Fairmont avenue, 2 p. m.
- Monday**
IWA meeting, 401 Old Main, 7 p. m.
Engineer meeting, Armory, 7 p. m.
Collegian advertising candidates, 8 Carnegie Hall, 7 p. m.
- Tuesday**
X-G-I Club meeting, 405 Old Main, 7:30 p. m.
Penn State Club meeting, 321 Old Main, 8 p. m.
Center Campus Club meeting, 10 Sparks, 7:30 p. m.
First Semester Collegian candidates, 8 Carnegie Hall, 7 p. m.
Second semester Collegian candidates, reporters, sports assistants, 8 Carnegie Hall, 7:30 p. m.
- Wednesday**
Common Sense meeting, 10 Sparks, 7 p. m.
Newman Club Discussion Club meeting, Rectory, Lady of Victory Church, 7 p. m.
WSGA meeting, WSGA room, White Hall, 7:15 p. m.
- Thursday**
IMA meeting, 401 Old Main, 7 p. m.
PSCA movie: "One Day in Soviet Russia," 121 Sparks, 7:30 p. m.

2nd Semesters Plan Trip; Sign Up at Student Union

Second semester students who plan to attend the second semester swimming party at Whipple's Dam on Saturday, September 1, should sign up at Student Union before next Friday at 4:30.

To assist in financing transportation and refreshments each second semester student must pay 50 cents when he signs up. The fee for other classmates who will be accompanied by a second semester is one dollar. When signing up each student is required to show his matriculation card. The truck transporting the students to Whipples will leave at 3 p. m. and bring them back at 11 p. m.

Nursery School Closes

The Nursery School closes today and will reopen Sept. 17, announces Dr. Winona L. Mor-

Chapel

Kistler Speaks

Dr. Raymon Kistler will speak on "Our Church and Our Day" at chapel services in Schwab Auditorium 11 a.m. Sunday. Special music will supplement the service.

Dr. Kistler is president of Beaver College, Jenkintown, Penna. Graduated from Westminster College, Wilmington, with an A. B. and a D.D., he studied at the Pittsburgh Theological Seminary and was ordained minister of the United Presbyterian Church in 1915. He has since ministered at Pittsburgh and Warren, Penna., and Rochester, New York.

The minister is chairman of the Committee of the United Promotion of the Presbyterian Church of the United States and a member of the Executive Committee of the American Bible Society. He is also a member of the Tuberculosis and Health Association, the Allied Temperance Forces, and Theta Phi. His many clubs include Rochester City, Ad, Midvale Country, Manufacturers and Bankers Rotary, and Old York Road Country Club.

Aurorov Translates

Russian News Report

While reading a recent edition of the "Novoye Russkoye Slovo," a Russian daily newspaper published in New York City, Father Constantine Aurorov, instructor of Russian, saw an interview report which he thought would be of interest to students at the College.

According to Father Aurorov's translation of this article, Vasily Kuznetsoff, general secretary of the Professional International Trade Union, declared that Russia no longer needs a system of lend-lease with America. Mr. Kuznetsoff, who is touring industrial cities of the United States with fellow representatives of the Russian automobile and traction industries, was in Detroit when he made this statement.

Mr. Kuntzetsoff went on to say that what present day Russia needs is a direct buying and selling contract with other nations of the world. He added that not only were machines badly needed but also engineers and other instructors to teach the Russian laborers how to use them. The interviewee stated that he believes the present need for teachers is greater than the need for mechanical appliances.



"Zoszak simply can't do a thing without his slide rule."
—Courtesy of Westinghouse

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