News of Science

Plasmin

A research team at Yale University has described significant progress in purifying a plasmin enzyme that dissolves blood clots. Daniel L. Kline, associate professor of physiology, and Jacob B. Fishman, research associate in physiology, report that plasmin has been tested successfully on animals and that preliminary tests on human patients are now under way.

In human patients, plasmin will be injected into the blood stream as soon as the blood clot is detected. The clot, judging from the animal experiments, should dissolve and the blood return to normal within a few hours. While there are drugs that help prevent the formation of blood clots, up till now physicians have had no drugs that will dissolve a clot once it has formed.

The big problem with plasmin, however, is purification. Plasmin is derived from the interaction of two other enzymes, plasminogen and streptokinase. Plasminogen is an inactive enzyme extracted from human blood provided by the American Red Cross. To activate plasminogen and form plasmin, streptokinase is needed. This enzyme is obtained from streptococcal bacteria that contain toxic materials which lower the supply of blood to the heart muscle, lower blood pressure, and cause chills and fever. Although the investigators at Yale have not yet achieved 100-percent purification of plasmin, they feel that they have found a method for removing enough of its toxic material to warrant tests on human patients.

It was Kline who made a major find in blood-clot research in 1953 when he developed a method for purifying plasminogen. In 1955 he and Fishman developed a method for the partial purification of plasmin.

Clinical tests on human patients are being conducted by Julian Ambrus, Joseph Sokal, and associates at Roswell Park Memorial Institute in Buffalo, N.Y. William Glenn, associate professor of surgery at Yale, and his colleagues are working on new tests with laboratory animals.

Important research on plasmin is also being carried out by scientists in other parts of the country, notably by William S. Tillett of New York University and Sol Sherry of St. Louis University. The Tillett-Sherry approach, however, differs from that of the Yale team in that Tillett and Sherry are working on methods of injecting streptokinase directly into the blood stream. This approach assumes that the body has enough plasminogen of its own to be activated by the streptokinase injection, and that plasmin will form within the blood stream and then seek out any blood clots that must be dissolved.

Neurological Research Foundation

The National Neurological Research Foundation has been established at the suggestion of some of the country's leading neurologists. It plans to found research fellowships and support research in the study of the nervous system and such diseases as Parkinson's syndrome, cerebral palsy, multiple sclerosis, amyotrophic lateral sclerosis, muscular dystrophy, epilepsy, senile psychosis, and other related conditions.

The foundation plans to give investigators full scope in studying these diseases as a whole and in relation to one another, rather than fragmented and split into isolated categories. Eight United States medical scientists will serve as members of the Scientific Advisory Committee, which will choose fellows and research projects for study in neurological disorders for which there are no known cures today. Members of the committee are as follows: Raymond D. Adams, Bullard professor of neuropathology, Harvard Medical School, and chief of the Neurological Service, Massachusetts General Hospital; Edward M. Dempsey, professor and head of the department of anatomy, Washington University; Louis S. Goodman, professor of pharmacology, University of Utah; Seymour S. Kety, professor of clinical physiology, University of Pennsylvania (on leave), and chief of the Laboratory of Clinical Science, National Institute of Mental Health; Oliver Lowry, dean and professor of pharmacology, Washington University; Horace W. Magoun, professor of anatomy, University of California, Los Angeles; James L. O'Leary, professor of neurology, Washington University; A. Earl Walker, professor of neurological surgery, Johns Hopkins Medical School.

In order to provide the research scientists with economic security, fellowships of from $10,000 to $12,000 yearly for a period of 5 years will be offered. The foundation program will in no way conflict with established efforts in the field; rather, it will concentrate effort on fellowships and research only. The foundation plans no clinical or rehabilitation centers.

Funds to finance the foundation's work will be raised through donations from the public and through other foundations' interest in medical research fellowships and research.

Contributions in any amount, however small, will be accepted. A fellowship supported entirely by a single group or donor will be named according to his or her wishes. The donor will be notified of the name of the fellow or fellows, the nature of the work, and where it is being done. Contributions will go directly to the account established for the National Neurological Research Foundation at the National Bank of Washington, Washington, D.C. Foundation headquarters are at 3255 N St., NW, Washington, D.C.

The officers of the new organization include: honorary president, Fuller Albright, associate professor of medicine, Harvard Medical School; treasurer, Barnum L. Colton, president of the National Bank of Washington; chairman, the Honorable William Marvel, vice chancellor of the State of Delaware; vice chairman, Mark D. Altschule, assistant professor of medicine, Harvard Medical School; executive secretary, Rodgers Denckla, 3255 N St., NW, Washington, D.C.

Standard Oil's 75th Anniversary Aid to Science Teaching

As one of several activities marking its 75th anniversary, Standard Oil Company of New Jersey is making a grant of $1.5 million to the Esso Education Foundation to finance a 3-year program to advance the teaching of science and engineering. Although the program covers 3 years, commitments will be made from year to year. Thus, when it is found advisable, support may be given to some new area not now contemplated. The features of the first year's program are as follows.

At the secondary level, opportunities will be provided for teachers to bring their background up to date through two summer institutes and one in-service institute. The summer institutes, to be

held on college campuses, will last from 6 to 8 weeks. The foundation's grant will meet expenses of the host institutions and provide board, room, tuition, traveling expenses, and a stipend to the teachers to help compensate for loss of summer earnings.

The in-service institute will enroll 100 public, private, and parochial school teachers in a metropolitan area university for a course of 27 Saturday sessions. The foundation's grant will meet the expenses of the university and provide a stipend to each teacher to help offset the loss of part-time employment. This project, based on strong recommendations from high-school and college educators, is a pilot operation and may be extended to other cities.

In both of these programs, teacher selection will be exclusively in the hands of the participating colleges. In order to encourage development of up-to-date instructional materials, support may be given to a project on the use of films or television for science teaching.

At the college undergraduate level, unrestricted funds will be provided to science and engineering departments. These might be used to purchase books and laboratory equipment and to permit faculty members to attend meetings, visit plants and scientific projects, prepare papers for publication or as teaching material, and conduct special research. The latter might include summer vacation projects, which could thus be conducted without loss of income otherwise obtainable from outside employment.

Capital grants to assist in the construction of new science buildings will be made to certain institutions that have undertaken such building programs. These grants will be in addition to capital grants usually made by the Esso Education Foundation.

At the graduate level, unrestricted grants will be made to departments of science and engineering. College authorities will have complete responsibility for selecting specific activities and individuals and otherwise directing disposition of the grants.

NSF Earth Science Grants

The Earth Science Program of the National Science Foundation is now receiving proposals for research grants that will be made in February and March 1958. Deadline for the receipt of proposals for work to begin in the fall or early winter is *20 Sept.* There are no formal application blanks, but an NSF pamphlet that describes the method of making application may be obtained by writing to the Earth Sciences Program, National Science Foundation, Washington 25, D.C.

Swedish Scientists Visit U.S.

Twenty-six members of the Swedish Association of Young Scientists spent August visiting U.S. research laboratories on a study tour sponsored by the National Academy of Sciences and the American-Scandinavian Foundation in New York. The decision to come to the United States was an abrupt change from previously announced plans. For some years the group had been making annual exchange visits with scientists of other European countries. In 1957 a trip to the U.S.S.R. was scheduled, to be followed by a return visit from the Soviets in 1958. However, after the events of the Hungarian uprising, the Swedish Association canceled the original plans.

While the Swedish scientists have themselves raised the funds for transatlantic passage and insurance, their expenses over here were financed by private contributions. Cosponsorship of the study tour was undertaken by the National Academy as part of its continuing program of facilitating U.S. participation in international science organizations and encouraging professional cooperation among scientists of all nations.

New Electronic Devices

Two new electrochemical devices which may rival the vacuum tube and the transistor in electronic technology have been announced. They are the "solion," developed by the Naval Ordnance Laboratory in Washington, D.C., and the "spacistor," developed by a team of physicists of Raytheon Manufacturing Company of Waltham, Mass.

The "solion" depends on the movement of ions in a solution, instead of in gas or a vacuum, as in the vacuum tube, or in a solid, as in the transistor. The ions flow between electrodes in an iodine solution. The device is highly sensitive to changes in outside conditions. The electric flow of ions, for example, can be stimulated and varied by changes in temperature, pressure, light, sound, and acceleration. In certain applications, it promises to be more selective, sensitive, and efficient than the vacuum tube or the more recently developed transistor. It is expected to make possible less expensive, smaller, and simpler electronic control systems.

The "spacistor" operates on what is described as "a wholly new principle." It is a semiconductor device, as tiny as the transistor, that operates electrically like a vacuum tube. It is said to "combine many of the best properties of the vacuum tube and the transistor" and thus to be "a major step forward in the art of amplifying electric energy." The spacistor promises two major advantages over today's best transistors: it will probably amplify as much as 50 times higher than transistors; also, because spacistors can be made from materials unsuited for transistors, they are expected to operate at temperatures more than double the temperatures at which today's germanium or silicon transistors can operate.

Teacher Exchange Program

More than 500 teachers from the United States and 37 other countries will participate in the 1957–58 program of exchange teaching arranged by the U.S. Office of Education. The teacher exchange program is now in its 12th year. It began in 1946–47 with an exchange of 74 American and 74 British teachers. With this year's exchange, 4273 teachers from the United States and 57 other countries will have participated in the program, which is part of the United States International Educational Exchange program of the Department of State.

The teacher exchange program is the forerunner of another program of international education arranged by the Office of Education. Under this latter plan more than 475 additional teachers and school administrators will be arriving during the fall months. They will participate in the International Teacher Education Program of the Technical Assistance Program, which is administered by the Office of Education in cooperation with the International Educational Exchange Service and the International Cooperation Administration, respectively, in the Department of State.

Mathematics Teaching Essay Contest

During the school year 1956–57, Kappa Mu Epsilon, honorary mathematics fraternity, and the AAAS Science Teaching Improvement Program sponsored an essay contest for teachers of mathematics and prospective teachers. Thousand-word essays on "Opportunities in teaching mathematics in secondary schools" were submitted by contestants. Prizes were awarded to Sister Mary Neal Moran, Mundelein College, Chicago, Ill.; Rose Mary Kotesa, College of St. Francis, Joliet, Ill.; and Cathleen Real, Davenport, Ia.

The winning essays will appear in the fall issue of *Pentagon,* official publication of Kappa Mu Epsilon. It is hoped that the contest and the resulting published essays will encourage undergraduate and graduate students in mathematics to consider the advantages of a career in secondary-school mathematics teaching.