Associates, was in charge of the project, and David Z. Robinson of Baird participated in the development.

Amateur Satellite Observers

The Astrophysical Observatory of the Smithsonian Institution has been assigned the task of initiating a nonprofessional satellite observation program, and Armand Spitz, director of the Spitz Laboratories, Yorklyn, Del., has been selected to act as coordinator of visual satellite observations.

Spitz will work with J. Allen Hynek, associate director of the satellite tracking program, and will supervise the coordination of the organized groups of nonprofessional observers throughout the country and the world. Among these are the Astronomical League, the American Association of Variable Star Observers, the Western Amateur Astronomers, the International Astronomical Federation, and others. Spitz will coordinate communication between these groups so that observations can be quickly transmitted to orbit computation headquarters.

Although the visual satellite observer corps will be operated on a volunteer basis, the selection of members will be based on skill and willingness to accept the responsibility for watching the sky at specified times. The principal reward to the observers will be the knowledge that their work will have unquestioned scientific value; without this assistance the satellites might be lost.

Appropriate recognition to observers who have participated in the program will be made by the officers of the satellite program so that observers will have a permanent record of their contribution. Observers who wish to participate in the satellite program should not write to Spitz directly, but should get in touch with their local amateur astronomy organizations, which will have received full instructions from central organizations.

New TB Vaccine

A new method of producing immunity to tuberculosis in mice was described recently by Guy Youmans, chairman of the bacteriology department at Northwestern University. The vaccine produced an immunity in mice equal to that found in mice immunized with BCG. BCG contains strains of living tubercle bacilli that have lost their power to produce disease, but still have the power to stimulate immune responses by the body. The new vaccine is made by grinding up tuberculosis bacteria and spinning them in a centrifuge to separate the different sized particles that are inside the cells. The particles are not alive but are still active as immunizing agents.

This is the first time that such separated, nonliving particles have been used successfully in producing immunity to tuberculosis. Chief members of the research team responsible for the development were Youmans, his wife Anne Youmans, and Irving Millman.

In the new method, tuberculosis bacteria were ground up in a sugar solution with powdered glass for 18 hours. This fragmented the membrane cover around the bacterial cells and let the inside contents escape.

The solution of suspended particles then was spun over and over again in an ultracentrifuge at speeds up to 40,000 revolutions per minute. Each time the solution was centrifuged, layers of fluid were separated and removed, until the different sized particles from within the bacteria were isolated in separate solutions or fractions.

To test whether any of these fractions could produce immunity, the investigators divided mice into three groups. One group received an injection of the fraction being tested; a second group received living BCG vaccine; and the third group received no injections. One month later the mice were infected with tubercle bacilli. Of the mice not protected, all died. Of those given BCG or the new vaccine, 60–70 percent lived.

Scientists in the News

LEON H. SCHMIDT, director of the Institute of Medical Research at Christ Hospital, Cincinnati, Ohio, has been awarded the seventh annual Eminent Chemist award of the Cincinnati Section of the American Chemical Society. The award was presented at the society's meeting on 23 Feb.

JOHN VON NEUMANN, member of the Atomic Energy Commission, recently received the Medal of Freedom from President Eisenhower. In a ceremony at the White House that was attended by Defense Secretary Charles E. Wilson and Adm. Arthur W. Radford, chairman of the Joint Chiefs of Staff, the President said that Neumann's work on "variously highly classified missions . . . resolved some of the most difficult technical problems of national defense."

WALTER H. ZINN, director of the Atomic Energy Commission's Argonne National Laboratory since 1946, has submitted his letter of resignation to the University of Chicago, which operates the laboratory. In his letter he commented: "As you know, the responsibilities as director of a research and development organization are complex and demanding. There is no reason to suppose that they will become less so in the future." He was asked to appear before the Congressional Joint Committee on Atomic Energy, but requested permission not to appear.

SIR BEN LOCKSPEISER will retire on 10 Mar. from the post of secretary to the Committee of the Privy Council for Scientific and Industrial Research, London. He is to be succeeded by H. W. MELVILLE, who is now Mason professor of chemistry at the University of Birmingham, Birmingham, England. Melville will take up his new appointment in August.

The following appointments to the faculty of the University of Michigan received approval of the regents at their meeting on 10 Feb.

HORACE W. DAVENPORT was appointed professor of physiology and chairman of the department of physiology in the Medical School, effective with the opening of the 1956–57 academic year. He has been professor and head of the department of physiology at the University of Utah College of Medicine since 1945.

THEODORE H. HUBBELL, curator of insects in the Museum of Zoology and professor of zoology, was appointed director of the Museum of Zoology, effective 12 Feb. His appointment fills the vacancy left by the death last May of Prof. J. Speed Rogers.

FRANCIS M. HENDERSON was named Fulbright lecturer in the department of engineering mechanics in the College of Engineering for 1956–57. He is senior lecturer in hydraulics in the School of Engineering, Canterbury University College, New Zealand.

JOHN C. AYRES was appointed associate professor of zoology, half time in the literary college, and half time in the Great Lakes Institute, beginning with the 1956–57 year. He also will be on a full-time basis in the Great Lakes Institute during the summer session. Ayres has been on the Cornell University faculty since 1949.

G. B. B. M. SUTHERLAND, since 1949 professor of physics and director of the Biophysics Research Center at the University of Michigan, has been named director of the National Physical Laboratory, London. Sutherland, who will take up the appointment next September, succeeds SIR EDWARD BULLARD, who retired on 31 Dec.

HOLGER ERDTMAN, Swedish chemist and expert on the chemistry of wood and wood products, visited the University of Illinois during February to deliver five talks in the annual Karl

Folkers lectures series. His wife, also a chemist, accompanied him; she is an authority on use of the spectroscope. The couple is now at the University of Wisconsin, where Erdtman is participating in a similarly endowed Folkers lecture series.

LINUS PAULING, chairman of the division of chemistry and chemical engineering at California Institute of Technology, will be George A. Miller lecturer in chemistry at the University of Illinois this spring. The lectures are scheduled for 5, 6, 12, 13, and 20 Apr. and 1, 3, and 4 May.

The late JAMES F. RINEHART, pathologist in the University of California School of Medicine, was honored by a symposium meeting of the Society for Experimental Biology and Medicine in San Francisco on 15 Feb. Henry Moon, associate professor of pathology, was chairman of the session, at which nine papers were delivered by former colleagues. Rinehart inspired much of the work that was presented, especially in the field of hardening of the arteries.

EDWARD L. SIMONS, a research associate in the analytical chemistry unit of the General Electric Research Laboratory, Schenectady, N.Y., has been selected to receive the National Association of Corrosion Engineers junior award for 1955. The award is given for the best paper published during the year in the NACE monthly periodical *Corrosion* by an author under 35 years of age. Simons' paper, "Sodium sulfate in gas turbines," dealt with metallurgical problems encountered in gas turbines that burn residual fuels. Coauthors of the paper were GEORGE V. BROWNING and H. A. LIEBHAFSKY, who are also with General Electric.

WALLACE J. MURRAY retired on 30 Dec. as an active staff member of Arthur D. Little, Inc., where he has served for 35 years. He will continue his association with the company as a consultant.

Murray received a B.S. in chemical engineering from Massachusetts Institute of Technology and a D.Sc. in physical chemistry from the University of Geneva, Geneva, Switzerland. Before joining A. D. Little in 1920, he taught at M.I.T. and at Northwestern University, was in the Chemical Warfare Service during World War I, and was employed by two chemical companies.

Murray, who holds more than 15 patents either as an individual or jointly, has cooperated on a wide variety of research projects that have involved original work with petrochemicals, pharmaceutical chemistry, and dyestuffs. He has frequently served as an expert witness in court cases involving industrial research. A charter member of the American Association of Textile Chemists and Colorists and a member of numerous professional associations, Murray is known for his translations into English of technical papers written in German, French, Italian, Russian, Swedish, Dutch, and Spanish.

W. DUNCAN RANNIE, professor of mechanical engineering at California Institute of Technology, has been appointed the institute's new Robert H. Goddard professor of jet propulsion. The Goddard professorships are the principal posts in the jet propulsion centers that were established at C.I.T. and at Princeton University by the Daniel and Florence Guggenheim Foundation. Rannie is the second Goddard professor at C.I.T. His predecessor was Hsue-Shen Tsien, who resigned last June to return to his native China.

EUGENE P. PEDERGRASS, professor of radiology at the University of Pennsylvania School of Medicine, and SAMUEL W. DONALDSON of Ann Arbor, Mich., have each been awarded the gold medal of the American College of Radiology.

JOHN A. HIPPLE, director of the Mineral Industries Experiment Station and assistant dean of the College of Mineral Industries at Pennsylvania State University, has been elected vice president and director of research of North American Philips Company, Inc. He succeeds O. S. DUFFENDACK as director of the Philips Laboratories at Irvington-on-Hudson, N.Y., and will join the staff about 1 May. Duffendack, who has reached retirement age, will continue for this year as a member of the board of directors of North American Philips and as a consultant to Philips Laboratories.

HENRY H. HAUSNER, an expert in powder metallurgy and in the construction of atomic power plants, has received the Stevens Institute of Technology Powder Metallurgy achievement award for 1956. Hausner is general manager of the Penn-Texas Corporation's nuclear engineering division.

JOSEPH J. GEORGE, superintendent of meteorology for Eastern Air Lines, Inc., has received the American Meteorological Society's first annual award for outstanding contributions to applied meteorology. Established by the Weather Corporation of America, the $500 award will be made yearly to acknowledge acheivement either in the direct application of meteorological or climatological knowledge to the fulfillment of industrial or agricultural needs, or in the research and development of scientific knowledge that can meet such needs. The prize may be awarded to any professional member of the society.

Hughes Aircraft Company has announced the appointment of two physicists to the staff of its Research and Development Laboratories. They are JOHN W. CLARK, former director of the nuclear electronics division of Litton Industries, Inc., and SAMUEL W. LICHTMAN, who has been head of the missile laboratory division of the Naval Ordnance Laboratory, Corona, Calif.

LYNN S. BEEDLE, chairman of the structural metals division at Lehigh University, has been named recipient of the first research award of the American Society of Civil Engineers. The award is given in recognition of "experimental and theoretical investigations into the fundamental nature of residual stress in structural steel."

ALBERT W. FRIEND, technical consultant of Bala-Cynwyd, Pa., received the second annual award of the National Electronics Conference last fall for his paper "The use of powdered iron in television deflecting circuits," which was presented in 1946. This work was judged a contribution of major importance to the advancement of electronics.

Recent Deaths

EDWIN J. BEVAN, Ventnor, N.J.; 73; retired mechanical engineer for the Bethlehem Steel Corporation; 8 Feb.

CLINTON T. BISSELL, Montclair, N.J.; 82; retired civil engineer; 16 Feb.

GEORGE W. BRAINERD, Pasadena, Calif.; 47; associate professor of anthropology at the University of California, Los Angeles; authority on early civilizations of Mexico; 15 Feb.

ELDRIDGE H. CAMPBELL, Loudonville, N.Y.; 55; chairman of the department of surgery at Albany Medical College; neurosurgeon who contributed much to the surgery of intracranial aneurysms; 15 Feb.

FREDERICK GAY CARTER, Shaker Heights, Ohio; 67; former president of the American Hospital Association and leading authority in hospital administration; 19 Feb.

H. HOLLAND DE JONG, Osawatomie, Kans.; 61; director of research and education at Kansas State Hospital; internationally known for his research in producing symptoms of mental illness in animals; 16 Feb.

EDWARD J. KENDRICKS, San