belief or associations. Congress has made no such provision in explicit terms; and absent one, the Secretary may not employ that standard to restrict the citizens' right of free movement."

Dissent. Justice Tom C. Clark, who wrote the dissent, was joined in his opinion by Justices Harold H. Burton, John M. Harlan, and Charles E. Whittaker. Clark held that Congress had given the State Department ample authority to operate under its regulations. He traced the Secretary of State's broad discretion over passport issuance back to 1856 and found no limits on the Secretary's authority in the legislative history. Clark wrote in rebuttal:

"But the court then determines (i) that the Secretary's denial of passports in peacetime extended to only two categories of cases, those involving allegiance and those involving criminal activity, and (ii) that the Secretary's wartime exercise of his discretion, while admittedly more restrictive, has no relevance to the practice which Congress can be said to have approved in 1952 [the year possession of a passport for travel abroad became obligatory].

"Since the present denials do not involve grounds either of allegiance or criminal activity, the court concludes that they are beyond the pale of Congressional authorization. Both of the propositions set out above are vital to the court's final conclusion. Neither of them has any validity: the first is contrary to fact, and the second to common sense. . . .

"In a wholly realistic sense there is no peace today. . . . Were this a time of peace there might very well be no problem for us to decide, since petitioners then would not need a passport to leave the country. . . .

"Indeed, rather than being irrelevant, the wartime practice may be the only relevant one, for the discretion with which we are concerned is a discretionary control over international travel. Yet only in times of war and national emergency has a passport been required to leave or enter this country, and hence only in such times has passport power necessarily meant power to control travel."

In an article in the *Washington Post* Clark is quoted as saying that the decision is a "blow" to the national security. He further observed: "This decision in effect strikes down all travel control until Congress acts."

Reaction. In editorials approving the Court's decision, both the *New York Times* and the *Washington Post* urged Congress to respect the constitutional tradition of due process when considering further passport legislation. The Federation of American Scientists, which had assisted Dayton in the preparation of his case, also released a statement expressing gratification and reminding Congress to frame any new statute with regard for the principle that the right to travel is guaranteed by the Constitution.

Sputnik III Signal Recording

The Soviet Embassy in Washington has issued a request for sputnik signal recordings from foreign observers. The embassy's statement, which includes information about the satellite's radio transmission, says:

"The sputnik continues to transmit scientific information. Its Mayak radio transmitter, emitting telegraphic signals on a frequency of 20.005 megacycles, is operating normally. It is being powered by solar batteries, and by electrochemical batteries when the sputnik is moving in the earth's shadow.

"By changing the length of the telegraphic signals, information is being transmitted about the operation of the solar batteries and the quantity of cosmic particles and photons. The signals have been coded as follows: When the radio transmitter is fed by the solar batteries, the length of the first telegraphic signal which follows the marker, equal to 300 milliseconds, lasts 150 milliseconds. When the radio transmitter is being powered by the electrochemical batteries, it lasts 50 milliseconds.

"Recordings of the luminescent cosmic ray counter are transmitted by an alteration in the length of the second and third (the last) signals from 150 milliseconds to 100 or 50 milliseconds. The shift to the various lengths of signals, depending on the number of particles registered, is effected by a relay system. The intensity of the cosmic rays measured is determined by frequency changes in the signals.

"The results of the decoding of the recordings received from the Mayak transmitter indicate that the solar batteries and the cosmic particle and photon counters are functioning normally. The transmitter may be expected to continue functioning for some time unless the solar batteries are put out of commission by meteoric erosion.

"The data transmitted by the Mayak through its radio channel will be of great scientific value if they are registered over a long period of time and by many observers. That is why it is particularly important for the study of the variations of cosmic radiation and the distribution of cosmic particles along the energy scale that the recordings be located in time as precisely as possible (to within a few seconds), that they be continuous, and that the information received about the operation of the cosmic particle and photon counters be received from the maximum number of localities situated in the various latitudes.

"Data on cosmic rays during the time the sputnik is in the earth's shadow are of particular value. The most favorable conditions for such observations at present are in the Southern Hemisphere—the Antarctic, Australia, South America, and South Africa.

"The U.S.S.R. Academy of Sciences would be very grateful to Soviet and foreign scientists and observers for magnetic or photographic plate recordings of the signals emitted by the Mayak transmitter with a specification of the time or a deciphering of these plates. Such information should be addressed to: Sputnik, Moscow."

British Scientists Petition Prime Minister

A group of 618 British scientists presented an appeal on 2 May to British Prime Minister Harold Macmillan, urging immediate action to halt the testing of nuclear weapons. The signers included 69 fellows of the Royal Society and 93 professors of science and medicine at British universities. Nobel Prize winner Sir John Boyd Orr; Sir Charles Darwin, former director of the British National Physical Laboratory; and Julian Huxley, who is former director of UNESCO, were among the signers.

The appeal said:

"Each added amount of radiation causes damage to the health of human beings all over the world and causes damage to the pool of human germ plasm such as to lead to an increase in the number of seriously defective children that will be born in future generations."

In a letter to the Prime Minister accompanying the appeal, Bertrand Russell wrote:

"I hope that this appeal from those most qualified to judge will be carefully considered by you together with the fact that a large majority of the British people are in favor of the suspension of the British tests. May I add that I personally feel that it is intolerable that Britain should continue its present series of tests, despite the suspension by the Soviet Government. A unique opportunity now exists to reduce the nuclear peril which confronts us all. I hope that you and your Government will accept the opinion not only of the many eminent scientists but of millions of ordinary people and call an immediate halt to the present series at Christmas Island."

Macmillan replied in a letter to Russell which rejected the appeal and said that it was essential "to rely upon the nuclear deterrent in order to prevent aggression." He continued:

"It must never be forgotten that the whole purpose of our policy is to save countless millions from death and suffering. This must be balanced against the possible future hazards associated with nuclear tests."

The preceding statements appeared in the May *Newsletter* of the Society for Social Responsibility in Science, which ended its report by observing:

"Shortly after this [exchange], it was announced that the British H-bomb tests at Christmas Island in the Pacific had unexpectedly been cancelled after the first of three scheduled blasts. The reason was not stated."

Jane Coffin Childs Memorial Fund for Medical Research

The Jane Coffin Childs Memorial Fund for Medical Research of New Haven, Connecticut, has announced appropriations totaling $312,779.93 in support of research and fellowships in cancer for the year 1 July 1957–30 June 1958. This brings to slightly over $4 million the total distributed by the fund since its establishment in 1937, when it represented the largest capital investment ever dedicated to the search for the causes of cancer. (Now, 20 years later, $4 million is approximately the sum spent in one year by a single institution, the Sloan-Kettering Institute for Cancer Research; the National Cancer Institute, which for 1958 received an appropriation of $56,402,000, allocated to research grants alone $22,675,000.)

Support is given for research in both the basic and clinical sciences; for postdoctoral fellowships providing advanced research training; for conferences, meetings of national and international societies concerned with cancer research. Among publications to the support of which the fund has contributed since it helped to establish them are the journal *Cancer Research* and the *Atlas of Tumor Pathology.*

Appropriations are voted by the fund's Board of Managers on recommendation of the fund's Board of Scientific Advisers. Directed by M. C. Winternitz, this board includes Edward A. Doisy, Charles B. Huggins, John J. Morton, Thomas Francis, Jr., Richard E. Shope, C. N. H. Long, William U. Gardner; and Levin L. Waters, assistant director. R. G. Harrison, Rudolph J. Anderson, S. Bayne-Jones, and Peyton Ross, members of the original board in 1937, now serve in an honorary capacity.

England, France, Austria, Japan, and Sweden are represented on the list of grants active in 1958. Bengt E. G. V. Sylven, associate professor of experimental cancer research at the Karolinska Institute in Stockholm, received a first grant ($30,000 for 3 years) to develop cytochemical methods to be applied to the problem of how proteolytic enzymes in malignant cells affect surrounding tissues. Jacques Monod, director of the department of cellular biochemistry at the Pasteur Institute, received a fifth grant (totaling $29,400 since 1954) for studies of specific enzymes involved in the selective penetration of certain organic molecules into bacterial cells. Monod has been invited to summarize this work at Harvard University, where he is to give the Dunham lectures this fall. Grants made to the Institute of Cancer Research in London's Royal Cancer Hospital, beginning 1938, when the late Sir Ernest Kennaway, at that time director of the institute, visited the Fund in New Haven, totaled $73,500 in 1958.

American investigators supported by the fund's grants in 1958 were working chiefly in university and medical school departments of the basic and clinical sciences. Six, however, were located outside the schools in nonprofit research institutes, three of which were devoted entirely to cancer.

First grants were made to ten investigators for periods ranging from 1 to 3 years. The other 16 grants active in 1958 represented renewals, some for the tenth to the fourteenth time, bringing support to some of these individuals and groups for twenty consecutive years. These include grants since 1938 for the study of the role of viruses in the genesis of cancer by the late Francisco Duran-Reynals at Yale University's medical school. Among several long-term programs currently supported on the basis of 5-year grants ($25,000 a year) is that of Charles B. Huggins and his associates at the Ben May Laboratory of Cancer Research, University of Chicago.

Biochemical approaches outnumber all others in the work of both investigators and fellows supported by the fund, with especial concern shown for the chemical reactions in normal and neoplastic cells and tissues and with particular interest in protein and nucleoprotein metabolism. Tumor and other viruses, immunological mechanisms, and steroid hormones are being investigated. Studies of steroid hormones range from synthesis in normal tissues to investigation of their role in the metabolism and growth of tumor cells, from use in experimental induction of tumors to use in the treatment of cancer in man.

Relevance to cancer is more broadly assessed in the award of postdoctoral fellowships, in which the primary emphasis is placed on providing training and research opportunities to promising candidates who intend to devote themselves to research. Such fellowships, given for 1 year and in some instances renewed for a second, have taken American and foreign students in a wide range of disciplines to major laboratories in the United States, England, France, Belgium, and the Scandinavian countries. The fellowship program has also made its modest contribution to academic medicine since its inception 15 years ago. Now, when the medical schools have for several years suffered from critical shortages of full-time instructors, past fellows of the Jane Coffin Childs Fund are conducting their research as full-time members of 12 university and medical school departments of the basic and clinical sciences; two are directing coordinated teaching programs in cancer; six others are engaged in full-time research outside the schools in nonprofit research institutes.

Applications for research grants and fellowships are reviewed by the Board of Scientific Advisers three times a year at the offices of the Jane Coffin Childs Memorial Fund for Medical Research, 333 Cedar St., New Haven 11, Conn.

International Unit of Enzyme Activity

The Committee on Biological Chemistry of the Division of Chemistry and Chemical Technology, National Academy of Sciences–National Research Council, has undertaken a program of supplying to investigators information regarding commercially available biochemical reagents. As part of the effort to obtain appropriate data for the description of commercially available enzymes, the Subcommittee on Enzymes of the Committee on Biological Chemistry has searched for a suitable general unit to express the activity of enzyme preparations. Such a unit, universally adopted, would permit easy, direct comparison of data obtained in different laboratories. To further this purpose, it was felt desirable that such a unit (i) should not be based on the use of a particular instrument, (ii) should eliminate as much as possible the use of high numbers and decimal points.

After consideration of various possibilities, it was decided to define a unit as 1 μmole of substrate utilized per minute under specified conditions of *p*H and temperature control, and the specific activity as micromoles per minute per milligram of protein—that is, units per milligram of protein. The latter represents 1/100 the activity value given for many enzymes in the literature expressed as moles of a substrate utilized per 100,000 grams of protein. It is in the range 1 to 1000 for the majority of enzymes commonly used.

The above-mentioned unit cannot be used readily in the description of pro-