that the internal cesium-137 dose is proportional to cumulative, rather than annual, deposition of fallout and by his consideration of cesium-137 as the only contributor of external gamma radiation. Except for these differences in assumptions affecting the estimates of dosages, including assumptions about the number of neutrons escaping to air, we are in general agreement with Leipunsky's calculations.

Conclusions

1) Subject to large uncertainty, the transmutation effect of carbon-14 atoms contained in the genetic material of the human body could lead to about the same number of genetic mutations as the radiation effect from carbon-14.

2) Genetic damage estimates are subject to large uncertainties and should be used in this light.

3) Because nuclear weapon detonations have already produced radioactive carbon-14, the number of persons in the world likely to have genetic or other abnormalities from carbon-14 radiation will be increased. Expressed as a fraction, the increase from bomb testing to date is very small, but the total number of persons likely to be affected in the next 8000 to 10,000 years may not be considered small by some persons.

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News of Science

De Hevesy to Receive $75,000 Atoms for Peace Award

George Charles De Hevesy of the Research Institute for Organic Chemistry, Stockholm, Sweden, has been named winner of the second $75,000 Atoms for Peace Award for his discovery and development of tracer techniques in chemistry, biology, and medicine. The Hungarian-born chemist and teacher, who received the Nobel Prize in 1943, was selected unanimously from a list of 111 nominees representing 19 countries throughout the world. De Hevesy will attend presentation ceremonies in New York City in January 1959.

The award was announced by Detlev W. Bronk, president of the Rockefeller Institute and the National Academy of Sciences, and chairman of the Board of Trustees of Atoms for Peace Awards. In tribute to De Hevesy, Bronk said:

"His willingness to accept a failure in a chemical experiment as a starting point for new explorations led to the first use of radioactive isotopes as tracers in chemical studies. His application of this discovery to biological systems has revolutionized our concept of the biochemical processes in living organisms.

"He was the first to apply both natural and artificial isotopes to the study of plants and animals; he introduced the use of stable isotopes and he was the first to explore the possibility of creating radioactive substances within the system being studied by means of neutron bombardment.

"These discoveries, now adopted in laboratories and hospitals all over the world, are certainly among the most important advances in the peaceful use of atomic energy in our time. In the fields of chemistry, biology, geology, and medical research and therapy, the results of De Hevesy's contributions are continually being extended and widely utilized.

"His own work has continued undiminished and the output of scientific papers from his laboratory in Stockholm is both copious and significant."

Born in Budapest in 1885, De Hevesy took his doctorate at Freiburg in 1908. After a period of study in Switzerland and Germany, he went in 1911 to work with Ernest Rutherford in England. Here he failed to separate radium D from lead. This failure resulted in De Hevesy's development of the use of the radioactive element (now known to be an isotope of lead and not readily separable from it by chemical means) as a tracer for lead, first reported in 1912.

From 1913 to 1920, at the University of Budapest, first as a lecturer, then as professor of physical chemistry, De Hevesy continued his studies of lead in organic and inorganic compounds using the tracer technique. In 1920 he joined the Institute for Theoretical Physics in Copenhagen. Here, with the physicist D. Coster, he discovered the chemical element hafnium.

In 1933 he applied the tracer technique to the study of chemical processes in plants. This was the first use of the technique in living systems. As new potential isotope tracers became available, De Hevesy extended his techniques to include the use of heavy water in 1934 and of artificially radioactive elements in 1935.

He also pioneered the activation of radioactive compounds within the system being studied by means of neutron bombardment.

Since the second World War, De Hevesy has worked both in Copenhagen and Stockholm. His publications since 1950 include more than 50 papers. He is author or coauthor of four texts on radioactivity and its uses in chemistry, biology, and medicine.

The Atoms for Peace Award was created as a memorial to Henry Ford and

George Charles De Hevesy

his son, Edsel Ford, in response to President Eisenhower's appeal at Geneva for international efforts to develop nuclear energy for peaceful purposes. The Ford Motor Company has set aside $1 million for the awards, the first of which was presented to Niels Bohr on 24 October 1957.

The awards are administered by a Board of Trustees, which with the assistance of an Advisory Committee on Nominations, selects the annual winner "without regard for nationality, politics, or any other consideration except the merit of the contribution." Trustees of the award, in addition to Bronk, are Ralph J. Bunche, Arthur H. Compton, Mildred McA. Horton, James R. Killian, Jr. (inactive), and Alan T. Waterman. The Advisory Committee on Nominations for the 1958 Award were Robert A. Lovett, Robert F. Bacher, Robert F. Loeb, Robert E. Marshak, and Charles A. Thomas.

FAS Urges Permanent Cessation of Nuclear Tests

The Council of the Federation of American Scientists, at a meeting in New York on 23 November, released a statement urging the permanent cessation of nuclear tests. The federation now has a membership of approximately 2200 scientists and engineers of all fields. Its Executive Committee this year includes: chairman, Augustus H. Fox, professor of mathematics, Union College (Schenectady, N.Y.); vice chairman, Walter Selove, professor of physics, University of Pennsylvania; secretary, Harry Palevsky, physicist, Brookhaven National Laboratory; treasurer, Leonard Herzenberg, biochemist, National Institutes of Health; Paul M. Doty, professor of chemistry, Harvard University; and Frank Ham, physicist, General Electric Research Laboratory. The FAS statement follows.

"Recent calculations, based on official information, indicate that there are probably enough large nuclear bombs in present stockpiles to destroy the human race. This could be accomplished by the blanket of radioactive material which could be laid down by the explosion of a massive number of nuclear bombs. For example, if even a fraction of present stockpiles were exploded on the territory of even a large country, a deposit of radioactive material would be produced of such intensity that all life in the open would be destroyed, and life would not be possible on the surface of the earth until about one to three years had passed.

"It would furthermore be possible for a fanatical ruler to pull down the entire human race to destruction. With a stockpile of the size that now exists, it is possible to cover the entire earth with a radiation level which for ten years would remain sufficiently intense to prove fatal to all living beings on land. This could be brought about by a decision of a small number of people.

"The argument has been advanced that continued testing is important to develop defensive weapons that would be effective in providing protection. But expert opinion has been given to the effect that there is not, and very likely never will be, any meaningful defense against massive attack. It may be possible to inflict destruction on an opponent, but no nation can any longer give protection and security to its own people. Only a 100 percent defense can prevent annihilation, and 100 percent defense can never be expected, especially in the first stage of an intensive attack.

"We have thus come to a new period in history, in which the human race can destroy itself. The new weapons of mass destruction are too dangerous to be left under sovereign national control. In these circumstances our primary goal must be to bring these weapons under international control. A universal test cessation, under international inspection, offers promise of being the most practicable first step toward international control of mass destruction weapons.

"Although it is the responsibility of the military to seek further development of weapons of all types, it must be stressed that security is not available through military means. Therefore an objective of moving toward effective disarmament must come before considerations of technical improvements which further testing might produce in nuclear weapons.

"We urge that the parties negotiating on a test cessation agreement not stand on any narrow position which will impede an agreement leading toward the major goal. The negotiators must adopt all reasonable measures which will provide satisfactory assurance to all parties that no further significant nuclear weapons development will occur.

"An acceptable agreement must include the immediate establishment of an effective test detection system, which the experts' conference reported to be technically feasible. As to the initial period of test cessation, we should agree to a permanent ban, subject only to the condition that the detection system be put into operation within an agreed period. Certainly any cessation period limited in duration must be longer than the period required merely to prepare another series of test explosions. The people of all countries may rightly demand that the governments of all nuclear powers show clearly that they sincerely desire to end the testing of nuclear weapons."

Research Advisory Service

The National Science Foundation has announced the establishment of a Research Information Center and Advisory Service on Information Processing to be operated jointly by the foundation and the National Bureau of Standards. The new service is designed to bring together research and development data on methods and equipment for the automatic processing of scientific information. It is further designed to foster closer cooperation among groups in industry, private foundations, universities, professional societies, and the Federal Government concerned with developing and improving methods of rapid and efficient handling of large volumes of information.

Initiation of the service is a part of a broad program being developed by the National Science Foundation to improve the quality of scientific information services and shorten the time spent by scientists in searching the literature. Other phases of the broad program include the support of scientific publications, translations of foreign scientific literature, and support of information and data-processing centers.

The foundation has made a grant of $105,000 to the National Bureau of Standards for the establishment and first year's operation of the service, and will establish policies for its use. The service will be staffed by NBS personnel, who will analyze materials received and furnish requested technical advice. The Council on Library Resources has contributed $20,000 toward operating costs during the first 2 years. The council, which supports research on library problems, was established in 1956 with the Ford Foundation's financial support.

During the first 6–9 months, the serv-