News of Science

More Mutation in Males?

In connection with the report of Glass and Ritterhoff [*Science* **124**, 314 (17 Aug. 1956)] that mutations with visible effects in *Drosophila* are at least 10 times as frequent in the male germ line as in the female germ line, for the loci studied, it is significant that J. B. S. Haldane has on more than one occasion conjectured that the same relation might be true in the human species. In the *Annals of Human Genetics* (May 1956) he makes estimates of the mutation rate to the sex-linked recessive gene responsible for muscular dystrophy (of the Duchenne type). Although the data are scanty, the result of the estimate is that the mutation rate in the female parent can scarcely be higher, and more probably is considerably lower (1/6), than the rate in the male parent.

Similar and more extensive data for hemophilia led Haldane in 1947 to suggest that the same might be true for that harmful trait, but the accuracy of diagnosing women heterozygous for the trait, a necessary parameter of the calculation, has been called in question. At least there are these two cases with a suggestive similarity to the *Drosophila* data. Haldane emphasizes that "as the importance of mutation for the causation of disease is recognized, and the possibility of increase in human mutation rates as a result of atomic nuclear reactions is discussed, it becomes of interest to compare mutation rates in the human sexes."—B. G.

AEC-World Bank Agreement on Aid for Nuclear Power Plants Abroad

The U.S. Atomic Energy Commission and the Export-Import Bank of Washington, D.C., have agreed upon joint action to assist with the construction of atomic power plants in nations that enter into Agreements for Cooperation with the United States. The Export-Import Bank is prepared to consider loans to privately owned public-utility companies, as well as to governments, to finance the construction of atomic power plants abroad. The terms would be similar to those provided in its financing of conventional types of power plants where U.S. equipment and technical services are required. These developments will take place under the following general conditions.

1) Nations seeking financial as well as engineering assistance in construction of atomic power plants must have completed an Agreement for Cooperation with the United States, as provided in the Atomic Energy Act of 1954.

2) The Export-Import Bank will require (i) a comprehensive engineering survey of a project; (ii) a technical report by the AEC on the reactor part of a project; (iii) an arrangement for availability of atomic fuels, through lease or sale by the AEC, for the term of a loan; (iv) evidence of over-all financial and economic soundness of a project; (v) evidence of the availability of funds to defray the local currency costs of the projects; (vi) assurances on the ability of the country concerned to service the dollar debt involved.

3) Proceeds of the loan can be spent only for equipment, materials, and technical services to be exported from the United States.

NSF Surveys Nonprofit Research Institutes and Commercial Laboratories

The scientific research and development effort of nonprofit research institutes and commercial laboratories in 1953 amounted to an estimated $85 million and required the employment of about 5000 scientists and engineers, according to a new National Science Foundation report, *Research and Development by Nonprofit Research Institutes and Commercial Laboratories, 1953*. The report was prepared by the Maxwell Research Center, Syracuse University, and is a part of an over-all survey of the entire research and development effort in this country. It covers all the known nonprofit research institutes and a substantial sample of all the commercial laboratories.

A majority of this country's commercial laboratories and nonprofit research institutes have been founded since 1941. This rapid increase can be accounted for largely by the swift expansion of the Federal Government's research programs, particularly those of the military departments.

There is little significant difference between the research and development programs of the two types of organizations. In general, both types have been established to provide scientific services to industry and are oriented towards solving specific practical problems.

During 1953 commercial laboratories spent approximately $35 million for scientific research, of which about $4 million was for basic research; nonprofit research institutes spent more than $50 million for research, which included approximately $3 million for basic research.

The Federal Government contracted with the commercial laboratories for about half of their total research expenditures and industry sponsored the remainder, except for a small portion of funds derived from such sources as trade associations, foundations, and universities. In the case of the nonprofit research institutes, the Government contracted for approximately twice the volume of research and development financed by industry.

A copy of the NSF report may be obtained for 50 cents from the Superintendent of Documents, Washington 25, D.C.

Radiation Death

Radiation exposure caused the death of Kenneth A. Koerber, Philadelphia physician who worked in the Atomic Energy Commission's Brookhaven National Laboratories between 1946 and 1948, according to the finding of a recent inquest. An autopsy at the time of death last July failed to disclose the cause, and a second autopsy was ordered.

In Washington, a spokesman for the AEC said: "We have nothing showing that [Koerber] ever got a dose of radiation. He did not work with radioactive materials and was not exposed to them in the course of his work."

Joseph W. Spelman, medical examiner for the city of Philadelphia, has made the following statement:

"We presume that Dr. Koerber somehow got a dose of atomic radiation that now, ten years later, caused his death. We have conclusively proved that he was subject to atomic radiation or to the inhalation or to the eating of atomic compounds. At the present time his bones contain 1000 times the maximum safe concentration of radiation."

Part of Koerber's duties at Brookhaven was inspecting laboratories to protect the workers from radiation. Spelman said the radiation absorbed by

Koerber's body was probably a cumulative exposure instead of a single one. Koerber's remains have been sent to Argonne National Laboratory for further examination.

Survey of Atomic Scientists

A survey of scientific and engineering manpower needs in private atomic energy industries will be conducted by the Atomic Industrial Forum, Inc., of New York under a contract with the U.S. Atomic Energy Commission. Scheduled to begin immediately, the survey will cover current manpower supply and prospective needs in relation to the industry's privately supported atomic energy activities, as distinguished from work done under contract to the Government. Information will be sought from all firms known to be engaged in or planning atomic energy work. The survey's purpose is to develop direct, reliable information for the use of industry, colleges and universities, and the Government in planning action to relieve the shortage of atomic scientists and engineers.

The forum survey will be the first step in a four-part manpower study based on the principle that the rate of advancement of nuclear science and engineering in the United States depends on the availability, now and in coming years, of an adequate number of persons trained in engineering and in the physical, mathematical, and natural sciences. Other surveys will cover the manpower needs of industry; universities, colleges, and nonprofit research institutions; and the Government. The survey being carried out by the forum will require about 5 months for completion. Arrangements for conducting other surveys will be announced as they are made.

Solar Water Heat

The Soviet radio has reported that the Government of Soviet Azerbaijan has ordered the construction of 200 solar water-heating plants this year and 500 next year to heat water for baths and showers in medical institutions and government agricultural stations. This follows the success of two solar plants built near Baku last year. The plants were able to heat water to between 48° and 56°C during the summer and to 43°C in the winter.

Building Radioactive since 1951

A building in Cincinnati, Ohio, that was last occupied by Keleket, Inc., makers of x-ray equipment, has stood empty since 1951 because it was contaminated by the explosion of a capsule of radium. The premises were immediately washed down and contamined machinery was crated in lead and shipped to Oak Ridge, Tenn., for burial. Nevertheless, later workmen were able to detect radium dust in every corner. Last September when an application for permission to use the building as a rest home was received by the board of health, tests showed that the building was still dangerously radioactive.

Kettering Laboratories, which has examined the structure, has reported that eventually repeated scrubbings and time might render it safe for occupancy if some areas were buried in concrete and if a constant check for radioactivity were maintained. Keleket went to court soon after the accident and asked $200,000 from its insurance company. A ruling is still pending.

Rare Infant Disease Identified

An unusual kind of pneumonia, hitherto not known to exist in the United States, has recently been identified in a 21-month old infant born and reared in Connecticut. The disease was reported by Georges Dauzier, Thayer Willis, and Roy N. Barnett in a recent issue of the *American Journal of Clinical Pathology*. The authors are all members of the staff of the Norwalk Hospital, Norwalk, Conn.

The dangerous organisms, *pneumocystis carinii*, appear in the lungs under microscopic examination, but they have not been cultured or transmitted to animals. The disease caused by these tiny organisms, however, has been of considerable concern in Central Europe, where it is a leading cause of death among small babies. Discovery of its presence in the United States at this time may indicate a possible health hazard.

The symptoms are those of a severe pneumonia, but the disease resists all of the drugs ordinarily used in the treatment of pneumonia. Since publication of the study, cases have been identified in Chicago and Oklahoma. How infants become infected with this little-known organism is unknown.

Isotope Separation

Photochemical separation of mercury-198 from other mercury isotopes has been achieved through the use of a monoisotopic resonance lamp. Mercury and water vapor are passed in a stream of nitrogen over a lamp that utilizes only mercury-198 as a radiation source. As a result, mercury-198 atoms are selectively excited, and, when some of the material reacts in the presence of a hot wire precipitator, the yield of mercuric oxide is enriched by a factor of 1.5 with respect to the desired isotope.

According to Bruce Billings of Baird Associates–Atomic Instrument Company, to whom a patent on this process has been granted, similar techniques may be feasible for the separation of other isotope mixtures. He also stated that such methods may be applicable to the study of sensitized atoms in reaction.

Hamsters and the Common Cold

For what appears to be the first time, a hamster has been infected with a common cold. This makes the hamster the only animal other than the chimpanzee to be susceptible to the common cold, according to Reginald L. Reagan, Eddy Palmer, Frances S. Yancey, Sing Chen Chang, and A. L. Brueckner in an article in the September *Archives of Pathology*, published by the American Medical Association.

Four strains of cold virus (MR, C, RLR, and D) were taken from human beings. The viruses were given to suckling hamsters by nose. After from 3 to 7 days, several sucklings in each group given the viruses exhibited the typical symptoms of a cold. Other hamsters were exposed to the nose and throat washings from a person who had not had a cold in the past year. None of these animals caught colds. However, when they later received virus material from the hamsters with colds, they developed the typical signs. The hamsters that originally had colds did not develop them when given virus material a second time.

Dentistry in Western U.S.

The demand for dental care in the western states is expected to increase more rapidly than the number of practicing dentists and dental hygienists, according to a survey of 11 states by the U.S. Public Health Service, Department of Health, Education and Welfare. This report, the first of a series to be made throughout the nation, states that of the 95,000 dentists who are expected to be practicing in the United States by 1975, about 16,000 will be located in the western states. This would be an increase of 4000 over the number of dentists practicing in the West during 1955, but it still would not be a large enough number to meet the needs of the region's expected population growth. Although the proportion of dentists to population is still higher in the West than in the nation as a whole, it is now declining at a faster rate.

The survey was conducted by the USPHS Division of Dental Resources in cooperation with the Council on Dental