lege, he enjoyed the college life, especially the contacts which it gave him with undergraduates, and it was by no means exclusively the intellectual ones with whom he was friends. Although he had never been particularly good at games, he was keenly interested in them, and of some at least was a shrewd critic.

He judged other physicists largely by the originality they displayed but was on the whole more appreciative of other men's experiments than of their theories. He was very reserved in speaking of those things about which he really cared but had warm feelings and strong beliefs. To him physics was something to be approached with the enthusiasm which he valued so highly in the young physicist, but also with a certain reverence, the reverence due to the infinite.

"A great discovery is not a terminus, but an avenue leading to regions hitherto unknown. We climb to the top of the peak and find that it reveals to us another higher than any we have yet seen, and so it goes on. The additions to our knowledge of physics made in a generation do not get smaller or less fundamental or less revolutionary, as one generation succeeds another. The sum of our knowledge is not like what mathematicians call a convergent series . . . where the study of a few terms may give the general properties of the whole. Physics corresponds rather to the other type of series called divergent, where the terms which are added one after another do not get smaller and smaller, and where the conclusions we draw from the few terms we know, cannot be trusted to be those we should draw if further knowledge were at our disposal."

G. Dahlberg, Human Geneticist

Gunnar Dahlberg, professor of human genetics and director of the Swedish State Institute of Human Genetics at the University of Uppsala, died on 25 July 1956, just a month before his 63rd birthday. He was educated in medicine at Uppsala and admitted to practice in 1920. His interest, however, was in research, and in 1921 he became research assistant in the newly established State Institute of Race Biology at Uppsala (Statens Rasbiologiska Institut) under Lundborg, whom he succeeded as professor and director in 1936. In 1945 a cerebral hemorrhage paralyzed his right side and left him with a permanent impairment of speech, but within 2 months he was back at work and continued until ill health caused his retirement in 1955.

Dahlberg's first major work was a monograph on *Twin Births and Twins from a Hereditary Point of View.* This was the dissertation for which he received the M.D. degree from Uppsala in 1926. This comprehensive work signalized the resumption of interest in twins under the influence of modern genetics, demography, and anthropometry. It contained detailed data in 191 pairs of monozygotes and 52 pairs of dizygotes, diagnosed by the polysomatic method, and a hypothesis of twinning as due to hereditary predisposition to double formation in the oocyte before the reduction division. The center of Dahlberg's interest, which dominated his subsequent work, was indicated in a single chapter on "Hereditary factors in populations," in which evolutionary forces such as selection and mutation on gene frequencies were evaluated by a simple calculus.

Dahlberg's chief contributions thereafter were concerned with theories of the genetical struture of human populations, culminating in his last book, *Mathematical Methods for Population Genetics* (1947), and his paper on "Genetics of human populations" in *Advances in Genetics,* volume 2, 1950. Of particular importance was his emphasis on the existence, within a total population, of partial populations, called isolates, within which random mating occurs. For Dahlberg [see *Human Biology,* **14**, 372 (1942)] the isolate concept underlies the concept of race and provides the rationale for a genetical theory of race formation. Since Dahlberg's influence helped to give a new form and direction to the study of human genetics, it may be well to quote his own statements [*Advances in Genetics,* **2**, 96 (1950)]:

"Human genetics have arisen from plant and animal genetics. In Germany this branch of research came to be influenced by ideas about race, as can be seen, for example, in the German term, *Rassenbiologie.* In that country it gradually came to enter into, and be influenced by, the Nazi ideology.

"In England, human genetics came to be linked with Galton's eugenics (the doctrine of the well-born), and was therefore extensively directed towards the investigations of families considered to be of particularly high quality.

"Thus, with human genetics focussed on population problems connected with politics as it was in England and Germany, no very important research was done. The main result from this point of view was subjective colored propaganda literature without any scientific value worth the name."

The change which came about in Dahlberg's scientific lifetime is illustated by the change in activity of his own institute from race biology to human genetics; Galton's Laboratory of Eugenics at University College, London, has become a laboratory of human genetics; the Eugenics Record Office at Cold Spring Harbor (founded 1910) has been absorbed by the department of genetics of the Carnegie Institution of Washington, and similar changes have occurred elsewhere. Dahlberg's influence was to direct human genetics into channels of research on evolutionary forces at work in human populations, and for this research he provided not only the strongly held and stated views quoted here but useful simple methods (sometimes called Mendelian algebra) and ideas to be tested by them. His final views on the essential problems of human genetics are in the concluding paragraph of the aforementioned paper: "But necessary though it may be to develop the theoretical-cum-mathematical side of the problems, the primary need is for empirical investigations of the processes taking place in human populations. We require both knowledge of the frequency of intermarriage, assortative mating, the fomation of isolates, etc., and also investigations of the actual frequency of individual characters in populations. We have, however, still very little possibility of comparing the make-up of a population at different junctures, or of comparing different populations at the same juncture. A great deal must be done to achieve an empirical foundation for the assessment of populations from the viewpoint of heredity. But this must be regarded as a very important task for human genetics to carry out" [*Advances in Genetics* **2**, 97 (1950)].

Dahlberg founded in 1948 the journal *Acta Genetica et Statistica Medica* for the publication of research on the aforementioned problems. He was its editor until his death.

Although Dahlberg may seem to have taken an antieugenical position, he made many contibutions to race betterment in the broader sense. His studies of the effects of alcoholism on the Swedish population (which resulted in his becoming what he referred to as a "statistical teetotaler") and his application, as collaborator or adviser, of quantitative methods to a wide variety of medico-social problems (he was an active adviser in 119 medical monographs) left an enduring mark on social medicine in Sweden.

His interest in human problems expressed itself in more personal ways as well: active assistance to refugees from Nazism and Fascism, recognized by the award to him from Great Britain of the King's Medal for Service in the Cause of Freedom. His personal convictions rested on a strong sense of scientific honesty, set forth in respect to the prostitution of genetics in Germany in his popular book of 1942, *Race, Reason, and Rubbish*. He later reacted with similar forthrightness when the Communists suppressed the development of genetics.

Something more than potential contributions to one branch of science is lost when a man like Gunnar Dahlberg dies, for the struggle to attain a life based on reason, which his life exemplified, is one that all scientists face.

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News of Science

AAAS Cardiovascular Research Award

The AAAS will award this year for the first time the AAAS–Ida B. Gould memorial award for research on cardiovascular problems. The award, which consists of a citation and $1000, is intended to stimulate research, particularly basic research, in the cardiovascular field.

The winner will be chosen by a committee of judges of which Paul Dudley White is chairman. The other judges were selected by the principal organizations in the United States that are active in the cardiovascular research field: C. Sidney Burwell (Helen Hay Whitney Foundation), Robert P. Glover (American College of Cardiology), Dickinson W. Richards (Life Insurance Medical Research Fund), Francis Wood (American Heart Association), and J. Franklin Yeager (National Heart Institute). Funds for the award, which will be continued on an annual basis, are provided by the Richard and Hinda Rosenthal Foundation of New York.

Church Service on Science and Religion at Time of AAAS Meeting

Donald Harrington, minister of the Community Church in New York, has announced that he is planning a special service at 11 A.M. on the morning of 30 Dec. on the subject, "Science and Religion." The entire service will be built around this theme, and in place of a sermon Harrington has arranged a discussion between himself and a number of scientists on "The challenge of science to religion and of religion to science."

Participants in the AAAS annual meeting, which is convening in New York 26–31 Dec., are cordially invited to attend this service. The Community Church is at 40 E. 35 St., just a few blocks from the AAAS meeting headquarters.

Archeology in the Marquesas

The results of the first archeological expedition ever made to the Marquesas Islands in the South Pacific have been reported by Harry L. Shapiro, chairman of the department of anthropology at the American Museum of Natural History, New York, and leader of the expedition. The trip was financed by Mr. and Mrs. Cornelius Crane, who accompanied the museum team.

The Marquesas are a group of 11 volcanic islands, six of which are inhabited. They are located approximately half-way between South America and Australia. Covered with mountains and luxuriant valleys, the islands are noted for their beauty. They were used by Herman Melville as the setting for his novel *Typee*, and the painter Paul Gauguin, who is buried on one of the islands, spent his last days there.

Early records show that when the first Europeans reached the Marquesas some 150 years ago, there was a Polynesian population of approximately 100,000. Shapiro states that these inhabitants were among the peoples most seriously affected by the diseases introduced by Europeans, so that when he first visited the islands in 1930 the population had dwindled to 1600. However, he now estimates that the population has increased to about 3500 persons of Polynesian ancestry.

Although ethnologists have studied the Marquesan culture and archeologists have mapped the huge stone surface structures known as meiaes, the American Museum's expedition marks the first attempt at excavations. Expedition members worked at several sites in the bays of Nukuhiva, the largest island in the group. There they discovered the remains of a culture definitely predating European contact and perhaps going back to the very early stages of Marquesan life.

According to Shapiro, scholars of cultural history in the South Pacific have been particularly interested in obtaining dates for an early culture in the Marquesas because of the light those dates would shed on the civilization of the area as a whole. Several carbon samples were taken from two caves on Nukuhiva for radiocarbon dating.

Inscribed in the rocks along the shore, the field party discovered line drawings or pictographs of human beings, whales, and other animals. Some of the drawings were hidden from sight under an extensive, rocky concretion, indicating that they must have been drawn before the concretion was formed. Therefore, the pictographs may very well represent a record of a very ancient Marquesan culture.

Another site was discovered in a sand dune that had been broken into by a tidal wave. The dune contained artifacts such as fishing gear, shell jewelry, and stone adzes. Several of the fish hooks were similar to those known to be used on Easter Island, which is some 2000 miles away.