treatment. Among these seven cases, one of which was found by myself and the others by Jollos, is one mutation which before was observed only once in the whole Drosophila work and two which had never been observed.

These certainly are interesting facts, which might lead to strange consequences. I personally am willing to wait for further results before drawing conclusions. Jollos, who has not yet published the results which I quoted, permits me to mention that he is inclined to derive the following interpretation: The genes produce within the protoplasm active stuffs which are of the same constitution as the genes themselves. Both will react in the same way upon external conditions, but those within the protoplasm easier than those protected within the chromosomes. Such a view, of course, would lead to many interesting consequences. We shall, however, dismiss the subject with the mention of the actual facts, which one day may be of great importance not only for problems of special genetics but also for discussions on evolution.

The title of this lecture was: "Some Aspects of Evolution." But as I said at the beginning, it was not meant that the idea of evolution itself, which all biologists consider a historic fact, should be under discussion, but some of the ways and means by which nature makes the transformation of species possible. The three aspects which I chose for representation were, first, an aspect where I had to express skepticism in regard to well-established beliefs. I tried to show on the basis of large experimental evidence that the formation of subspecies or geographic races is not a step towards the formation of species but only a method to allow the spreading of a species to different environments by forming preadaptational mutations and combinations of such, which, however, always remain within the confines of the species. The second aspect which I discussed was one where I felt again optimistic. I tried to emphasize the importance of the methods of normal embryonic development for an understanding of possible evolutionary changes. I tried to show that a directed orthogenetic evolution is a necessary consequence of the embryonic system which allows only certain avenues for transformation. I further emphasized the importance of rare but extremely consequential mutations affecting rates of decisive embryonic processes which might give rise to what one might term hopeful monsters, monsters which would start a new evolutionary line if fitting into some empty environmental niche. Finally, I discussed a third aspect of the problem, this time under the slogan of watchful waiting, namely, new lines of genetic research concerning the problem of mutation and therefore also of evolution. With these discussions we touched certainly only a small fraction of the manifold problems of evolution. But if we would try to visualize all the contributions which the science of genetics has recently made in this direction, we might be entitled to say that our insight into one of the most complex biological problems is constantly increasing. Progress of science follows of course a slowly ascending, wavy curve, with always recurring valleys. But viewed from some distance, the waves disappear and only the upward trend remains visible. Such is also the case with our knowledge of the methods and means of evolution.

OBITUARY

MEMORIALS

CEREMONIES commemorating the one hundredth anniversary of the birth of Dr. Carlos J. Finlay, who first advanced the theory that mosquitoes were carriers of yellow fever, were held at the Cuban Embassy on December 3. The ceremonies were due to the initiative of the Washington chapter of the Pan-American Medical Society, with Dr. Manuel Marquez Sterling, diplomatic envoy of the Cuban Government, acting as host. The program included addresses by Dr. Sterling, Senor Don Luis M. de Iruju, Spanish chargé d'affaires; Colonel Roger Brooke, of the Army Medical Department; Dr. L. O. Howard, Brigadier General J. R. Kean and Dr. Victor Alfaro.

MRS. ERNEST HOWE, of Litchfield, Conn., widow of Ernest Howe, who died last December, has given to Yale University $10,000 for the establishment of the Ernest Howe Memorial Fund. The income of the fund will be used to promote the study of the geological sciences at Yale. Mr. Howe, who graduated from Yale College in 1898, was editor of the *American Journal of Science* from 1926 until his death. In addition to his research work, he was geologist of the Isthmian Canal Commission, was invited by the Mexican Government to reorganize its geological survey and was geologist on the scientific expedition to Brazil headed by Dr. Hamilton Rice under the auspices of the Royal Geographic Society of London. He was elected to a term in the Connecticut Legislature in 1920 and in 1924 was elected to the Connecticut Senate.

THE *Journal* of the American Medical Association reports that the one hundredth anniversary of the publication of William Beaumont's "Experiments and Observations on the Gastric Juice and the Physiology of Digestion" was celebrated by the St. Louis Medical

Society on November 21, the one hundred and forty-eighth birthday of Dr. Beaumont. The program was as follows: Dr. Major G. Seelig, "Biographical Sketch of William Beaumont"; Dr. Joseph Erlanger, "William Beaumont's Experiments and Their Present-Day Value"; Dr. Robert E. Schlueter, "Dr. Beaumont as a St. Louisan," and Dr. Louis H. Behrens, "Our Civic and Medical Debt to Beaumont." Photostatic copies of Dr. Beaumont's letters and documents, with other historical objects connected with his life and work, are on exhibition in the society's headquarters. Dr. Beaumont was president of the St. Louis Medical Society in 1840.

THE *British Medical Journal* reports that it is proposed to establish a lectureship in the University of Edinburgh, to be called the Sharpey-Schafer Lectureship in Physiology, to commemorate Professor Sir Edward Sharpey-Schafer, who has occupied the chair of physiology for thirty-four years and who has just retired. It is suggested that under this lectureship one lecture shall be given annually in Edinburgh by a distinguished physiologist to be suggested by the Faculty of Medicine. For this purpose a capital sum of about £1,000 is required, and an appeal has been issued for subscriptions to this fund, limited to a maximum of five guineas. Any persons desiring to contribute to the fund should send their subscriptions to the Dean of the Faculty of Medicine, University of Edinburgh.

RECENT DEATHS

DR. ROSCOE WILFRED THATCHER, research professor of chemistry at the Massachusetts State College, president of the college from 1927 to 1932, died suddenly while at work in the college laboratory on December 6. Dr. Thatcher was sixty-one years old.

DR. ALFRED FABIAN HESS, New York City, known for his work on rickets and other diseases of children, died suddenly on December 5, at the age of fifty-eight years.

OLOF AUGUST PETERSON, curator of mammalian paleontology at the Carnegie Museum, Pittsburgh, has died at the age of sixty-eight years.

THE sudden death at the age of eighty-one years is announced of George H. Barton, assistant professor of geology at the Massachusetts Institute of Technology from 1896 to 1904 and since 1902 director of the Teachers School of Science, conducted under the auspices of the extension department of Harvard University.

WHEATON BRADISH KUNHARDT, chairman of the board of directors and formerly president of the Carpenter Steel Company of Reading, Pennsylvania, manufacturers of tool, alloy and stainless steel, died suddenly on November 23, at the age of seventy-four years.

TILLMAN D. LYNCH, formerly consulting metallurgical engineer in charge of manufacturing and metallurgical processes at the Westinghouse Electric and Manufacturing Company, has died at the age of sixty-six years.

WILLIAM SHEAR, horticultural inspector at San Diego, California, died on November 6. He was born in Albany County, New York, December 31, 1868, graduated from the University of Nebraska, was a potato specialist for a number of years in the U. S. Department of Agriculture, and, later, with the State Department of Agriculture of California.

JOHN JOLY, professor of geology and mineralogy in the University of Dublin since 1897, died on December 8, at the age of seventy-six years.

THE death is announced of Dr. Jan B. Novak, general secretary of the Czech Academy of Science, on October 29. He was sixty-one years old.

THE death is announced of Dr. Albert Wangerin, professor of mathematics at Halle.

SCIENTIFIC EVENTS

APPOINTMENTS IN THE BUREAU OF PLANT INDUSTRY

THE appointment of Frederick D. Richey, now in charge of corn investigations in the Bureau of Plant Industry, as associate chief of that bureau, effective on January 1, has been announced by Secretary of Agriculture Henry A. Wallace. Mr. Richey will aid the chief of the bureau, Knowles A. Ryerson, whose appointment was recently announced, in the general administration of the department's largest scientific bureau, and will give special attention to research activities.

Mr. Richey succeeds Dr. Karl F. Kellerman, who will become head of a new Division of Plant Disease Eradication and Control in the Bureau of Entomology. This division will have transferred to it all activities directed toward the control and eradication of the phony peach disease, blister rust, barberry, citrus canker and Dutch elm disease.

Frederick D. Richey was born on September 3, 1884, in St. Louis, Mo. He received the degree of bachelor of science in agriculture from the University of Missouri in 1909 and immediately following his graduation managed a farm in northern Illinois. For one year, 1910–11, he was the food and drug commissioner of the State of Missouri. He has been with