the advantage of providing a unified point of view from which such diverse and apparently contradictory phenomena as classical Mendelian genetics, cytoplasmic inheritance, cellular differentiation, and enzymatic adaptation may be analyzed.

The basic problem of cancer involves explaining the appearance of a sudden *heritable* change in somatic cells analogous in several ways to enzyme adaptation or cellular differentiation. It is, therefore, not surprising that cancer investigators (*11, 17, 20*) were one of the first groups of biological workers to strongly support the suggested existence of a cytoplasmic hereditary unit. An entity of this kind, by being self-duplicating, provides them with another level at which a mutation can take place and be subsequently transmitted via the cytoplasm from one cell generation to the next.

More or less similar views have been proposed by geneticists. Wright (*21*) in particular emphasized several difficulties in trying to explain either growth or differentiation in terms of the classical Mendelian concept of the gene. Thus, assumption that every time a new protein molecule is formed during growth the gene on the chromosome must intervene as a kind of model implies that growth would proceed linearly from a relatively minute portion of the cell. The kinetics of cell growth follow an autocatalytic law and so are not consistent with this thesis. He therefore suggested that perhaps "duplicates or partial duplicates of genes reach the cytoplasm when the nuclear membrane disappears in mitosis and that these can produce duplicates in turn, and so on, permitting exponential increase." To explain the fact that cytoplasmic inheritance is rarely observed he assumes that the self-duplicating capacity of these free genic replicas is subject to decay. Those that retain this capacity indefinitely he called "plasmagenes."

Again, in connection with cellular differentiation Wright (*22*) points out that the heritable stability of the differentiated state is more easily understood if we assume the existence of self-duplicating cytoplasmic components (plasmagenes) which can undergo controlled mutations. Stimulated by the fundamental observations of Sonneborn (*13*), Darlington (*4*) also postulated the existence of a cytoplasmic self-duplicating unit which he called the "plasmagene" and which he assumed controls heredity at the "molecular level."

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Obituary

Enoch Karrer

1887-1946

The field of textile research lost a valuable physicist in the death of Enoch Karrer on 27 March 1946 at Marine Hospital, New Orleans, Louisiana, following a short illness. Dr. Karrer was in charge of the Physics Section, Cotton Fiber Research Division, Southern Regional Research Laboratory.

Dr. Karrer came in 1936 to the Cotton Division, Bureau of Agricultural Economics, U. S. Department of Agriculture, in which the cotton investigations were then being conducted. The investigation of the physical properties of cotton fibers was a relatively new field to Dr. Karrer, who had given many of his earlier years to problems connected with light, optics, physiological stimulus of animals, rheology of rubber, and the like. This work was subsequently moved to the New Orleans laboratory.

Enoch Karrer was born at Rich Hill, Missouri, on 23 May 1887. After completion of grade and high school at Ellensburg, Washington, he attended the state university at Seattle, where he received the A.B. and M.A. degrees in 1911 and 1912, respectively. During 1913 and 1914 he was a fellow at Johns Hopkins University and was awarded the Ph.D. degree at the end of the latter year.

For several years following the completion of his formal education Dr. Karrer was associated with the United Gas Improvement Company, Philadelphia,

Pennsylvania. In this capacity he worked on such problems as methods for determination of the radiant luminous efficiency of light sources, factors affecting the relation of photoelectric current and illumination, construction of vacuum gauges, and the efficiency of light from the electric arc and from microorganisms. In 1919 the Franklin Institute awarded Dr. Karrer, jointly with Herbert E. Ives and E. F. Kingsbury, the Edward Longstreth medal of merit for outstanding optical research.

For about a year during World War I he served the Government in Washington in the capacity of research engineer, and in 1918 he joined the National Bureau of Standards as associate physicist in the Searchlight Section, of which he later became chief. Here he extended his work on light, covering contrast sensitivity of the eye, relative spectral transmission of the atmosphere, and more accurate methods for measurement of light intensity.

During 1921 Dr. Karrer left the Bureau to become physicist of the National Lamp Works of the General Electric Company at Nela Park, Cleveland, Ohio. Papers, some of which were published in German journals, continued to appear in the field of applied research on the improvement of apparatus, the properties of different lamps, and the biological effects of light.

In 1923, in addition to his activities at the Nela Park Laboratory, Dr. Karrer became research associate at the Cushing Laboratory for Experimental Medicine, Western Reserve University. Here, in association with H. C. Stevens, one of his former teachers at Washington State University, he conducted researches extending over 12 years and culminating in some nine papers in the field of muscle activity and medical instrumentation. Undoubtedly Dr. Karrer's great interest in medical phenomena throughout the remainder of his life stemmed from this long association.

In 1926 Dr. Karrer transferred from the Lamp Works to the Cleveland Wire Works of the General Electric Company, and later in the same year to the B. F. Goodrich Company, Akron, Ohio, where he undertook measurements of the plasticity of rubber and developed a new instrument for this purpose. One especially interesting title for this period reads: "A method of blood transfusion by means of rubber tubes vulcanized on the blood vessels." During this period also, a number of patents were issued to him and assigned to the B. F. Goodrich Company. In 1932 he left the Company and for approximately three years gave his full time to Western Reserve University.

Dr. Karrer was an author of approximately 70 publications in the scientific field in addition to some half-dozen patents. At the time of his death he had many phases of investigation in various stages of development, and the stage seemed to be set for his former fruitful flow of papers.

In his attitude toward research Dr. Karrer was fundamental and extremely antagonistic toward halfway measures and expedients, and had a profound sense of ethics in the scientific field. His ingenuity and experience as well as his kindly smile will be greatly missed among his many colleagues and friends.

CARL M. CONRAD

New Orleans, Louisiana

Philippe Lasseur
1882-1946

Philippe Lasseur, professor of microbiology in the Faculté de Pharmacie, Université de Nancy, France, died on 10 January 1946 from complications following an attack of pneumonia. He was 63 years of age.

Prof. Lasseur, who served in the French Army during World War I and was made a chevalier of the Legion of Honor in 1934, was the author or joint author of over 200 papers on microbiology. His work in this field covered a wide range, but he is perhaps best known for his studies on the conditions affecting growth and pigment production by dissociated types of various species of chromogenic bacteria. In 1928 he founded the annual publication, *Travaux du laboratoire de microbiologie de la faculté de pharmacie de Nancy,* in which most of his later work was published. Despite the difficulties of World War II, he was able to continue his work as well as the publication of this journal, of which Fascicule 14 appeared in 1945.

His death marks the end of an era, but it is to be hoped that his students will be able to continue the work which he carried on for so many years.

WALTER C. TOBIE

Old Greenwich, Connecticut

Bernice Maclean Shapiro
1903-1946

Bernice Maclean Shapiro, assistant professor of biology at Hunter College and former chairman of that Department, died on 8 March 1946. She was born on 20 November 1903 in Waterbury, Connecticut, of Scottish ancestry reaching back to Duart Castle on the Isle of Mull.

At Mount Holyoke College, from which she was graduated with high honor in 1926, she majored in zoology and was elected to Phi Beta Kappa.

During the next year she served as an assistant in zoology at Mount Holyoke and the year following was appointed instructor. During her instructorship, from