

Obituaries

DAVID MAHLON BONNER

May 15, 1916–May 2, 1964

David Mahlon Bonner, Professor of Biology at the University of California, San Diego, died May 2, 1964, at the age of 48. The loss of this uncommon man is a tragedy for his friends, his colleagues in science, and his university associates who knew his intellectual force, his physical vitality, his impatience with sham, his courage, his audacity. And those who did not know him will sense these qualities in his indelible contributions to the University he helped create and to the science he loved.

Professor Bonner's major research contributions were in the field of biochemical genetics although he maintained an active interest in plant physiology. Early in his career he joined Drs. Tatum and Beadle at Stanford University and participated with them in the explorations with the mold *Neurospora crassa* which eventually led to an understanding of how genetic material operates in determining the structure and function of the specific proteins of each organism. During these early studies, mainly concerned with the intermediary steps in biosynthetic pathways, he perceived that it would be necessary to examine gene structure and mutationally altered proteins to discover the mechanism of action of genetic material. When he formed his own group at Yale University, in addition to continuing important work on intermediary metabolism, he initiated several projects aimed at determining the types of protein alterations that result from mutations. With his students and his co-workers he was able to demonstrate convincingly that in certain cases all mutations that affected an enzyme were located in the same small segment of genetic material. These observations provided the experimental evidence justifying the one gene-one enzyme-one biochemical reaction hypothesis. It was also evident from these investigations that different types of enzyme alterations could result from mutations in one gene. This suggested the existence of genetic substructure although at the time there was no conclusive evidence for such substructure. Pursuing this possibility he was among the first to demonstrate recombination between alleles, that is, to show that a gene was divisible into smaller units. These early studies played an important role in relating recombination data and genetically determined structure with the chemical substance which is now known to be the genetic material. During the course of these studies, Professor Bonner and his co-workers isolated certain mutant strains in which it appeared that mutations affected the rate of formation of specific proteins rather than the structure. Continued investigation of these observations culminated in the realization that enzyme formation in microorganisms is regulated by so-called repressor systems which respond to small molecular weight substances and determine whether or not an enzyme will be formed. Other investigations by Bonner and his group led to the first demonstration, in mutant strains, of enzymatically inactive proteins which were indistinguishable immunologically from a missing enzyme. It was also observed in subsequent studies that other mutants produced proteins which were recognizably related although clearly different, immunologically, from the missing enzyme. All of these studies led to the general conclusion that one of the principal functions of genetic material is to specify protein structure and that a variety of protein structural changes are associated with mutational alterations. Most recently, Bonner was beginning to develop an hypothesis to account for the evolutionary origin of certain enzymes.

These are but a few of the landmarks of his career. Besides his own contributions, he had many students and co-workers all of whom derived much of their inspiration and devotion to science from his guidance. He lived and taught the excitement of the exploration of the unknown.

In coming to the University of California at San Diego in 1960, Professor Bonner was attracted mainly by the youthful vigor of the new campus and the clear dedication of its leaders to the development of an uncompromisingly first-rate institution. He quickly became one of those leaders. He saw the opportunity to create a forward-looking community of scholars,

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teachers, and students in biology and medicine, unhindered by the dead hand of the past. In his less than four years at La Jolla, he helped to place this institution firmly on paths leading to excellence. It was his concept that a Department of Biology should be an integrated entity, not fragmented into a cluster of non-communicating sub-disciplines, and that especially at the beginning it should be particularly active in those many areas of biology which lend themselves to quantitative understanding at the cellular and molecular level. To this end he forged strong ties between the Departments of Biology and Chemistry at La Jolla. He was the one person most instrumental in establishing the proper conditions for the development of an outstanding and modern School of Medicine at San Diego. Mainly through his efforts, and over much opposition, was it decided to place the School of Medicine on the campus at La Jolla, thus ensuring a close and fruitful interaction of the School and the University. Without him, this physical union would most probably not have taken place. For this achievement alone, the University owes him an enormous debt of gratitude. He was a powerful advocate of the view that the practice of medicine of the future was certain to be greatly influenced, if not revolutionized, by the new kinds of fundamental information being acquired about life processes at the cellular and molecular level.

His vision of the University, however, extended far beyond the confines of biology and medicine. He was concerned with all phases of the University's development, and was active in the planning and recruiting for the initial faculties in the humanities and the social sciences at La Jolla. In all of these activities, he was the constant champion of experimentation, and of the excitement of new opportunities.

Yet, when we have finished with the enumeration of all the many and vital achievements, there is still so much left unsaid. Perhaps this is because his greatest achievement was as a human being. All who were fortunate enough to know David Bonner will know what we mean. Beneath a sometimes gruff exterior was a warm, generous, and sensitive nature. Everything he did was done with enthusiasm. And he was so full of the joy of living, that it is hard to think of him as anything but vibrantly alive.

JOHN A. DEMOSS
STANLEY E. MILLS
S. J. SINGER
CHARLES YANOFKY

GABRIEL A. LEBEDEFF

April 10, 1894—May 14, 1964

Gabriel A. Lebedeff was born April 10, 1894, at Krowoi-Rog, Russia, and died of a heart attack on May 14, 1964. He served as a Second Lieutenant in the Russian Imperial Army. After the revolution he joined the White Army of General Wrangel, where he was promoted to First Lieutenant. He was evacuated to Yugoslavia after the collapse of the White Front in 1920.

In September of 1923 he came to the United States and became a naturalized citizen seven years later. He received his B.S. degree from the University of Connecticut in 1928. His M.S. degree was received at Cornell University and his Ph.D. in February 1938.

From 1940-1943 he was Plant Breeder in charge of corn and bean breeding in Puerto Rico. He released a variety of bean which was high yielding and well adapted to Puerto Rico. In 1943 he was appointed Associate Agronomist at the Georgia Experiment Station and in five years was promoted to Agronomist in charge of corn breeding work. He developed fine high yielding hybrids which are well adapted to Georgia conditions.

Dr. Lebedeff was a member of the American Association for the Advancement of Science, Sigma Xi, Phi-Kappa Phi, Genetics Society of America, American Genetic Association, and American Society of Agronomy. He published a number of scientific papers and popular articles of his work.

Dr. Lebedeff retired from the Georgia Experiment Station June 30, 1961. He is survived by his wife, Mrs. Olga Keyke Lebedeff, and one son.