

The London *Times*, in reporting a conference on science and world order, stated recently, "But though science shows the way, it would be presumptuous to believe that science alone can lead us to the goal. The men of science themselves have moved far since the era of uncritical optimism, when progress was regarded as automatic and science as its predestined instrument. We need no evidence to-day that science can serve evil ends as well as good. . . . This is no reproach to the instrument, but a reminder that the ultimate test of its value lies in the moral purpose directing it. The most important service rendered by the conference has been to bring to public knowledge the almost unlimited potentialities of human development and human well-being which science has to offer. Science provides the opportunity. There must be the will to use it."

CONCLUSION

What, then, does science mean to me? The answer includes elements of admiration, disillusionment and faith.

In essence, science represents an unbelievably large collection of facts and interpretations of these facts, relating to every known area of the natural world. Acquisition of this information and application of it in the arts and industry are the glory of the scientific method.

Science and the scientific method are primarily human tools. They provide information and means for action; but they do not suffice in themselves to make any one act or, in case of action, to direct it to human good. The latter ends, if we want them, necessitate transformation and direction of our motivation by other means.

The scientific approach is the most effective procedure thus far discovered for enabling us to understand, and to adjust ourselves to, the physical world. In doing this we may well turn to Glenn Frank for our motto. "Let's stop being radicals or conservatives," he said, "and be scientists. That is, let's *act* in the light of the facts in the case, rather than in the (twi)light of our prejudices or the faded labels of our class, our clique, or our clan."

OBITUARY

EDGAR ALLEN

PROFESSOR EDGAR ALLEN, chairman of the Department of Anatomy of Yale University School of Medicine, one of the best-known anatomists and an outstanding authority on the physiology of sex and reproduction, died on February 3. His contagious enthusiasm and energy and his stimulating personality will be missed not only by his associates at Yale but by many throughout the country. His capacity to appreciate the new and significant, his impatience with inactivity and his friendly yet constructive criticism were familiar to all who knew him.

Less than fifty-one years ago Professor Allen was born at Canyon City, Colo., on May 2, 1892. Shortly after his birth the Allen family moved to Providence, R. I., and it was there that, during his youth, he acquired a love of sailing and knowledge of the winds and currents of the Narragansett Bay and Long Island Sound that persisted throughout his life.

Immediately after completing his undergraduate study at Brown University in 1915 he began his graduate studies in biology. During his college and graduate years he contributed largely to his own support by working as student assistant, as a waiter or at other tasks. These experiences undoubtedly contributed, in later years, to the sympathetic understanding and actual assistance he afforded so many students when they were confronted by financial difficulties.

His graduate study was interrupted in May, 1917, when he volunteered for service in World War I as a member of the Brown Ambulance Unit. Later he transferred to a mobile unit of the Sanitary Corps, in which he served in France. By the time he returned to civilian life in February, 1919, he had been commissioned a second lieutenant.

During the summer of 1919 he was an investigator for the U. S. Bureau of Fisheries in laboratories at Woods Hole, Mass. That fall, however, although he had not completed his graduate studies, he became instructor and associate in anatomy at Washington University School of Medicine in St. Louis. During the following two years he completed the requirements for the degree of Doctor of Philosophy from Brown University. In 1923 he became professor of anatomy and chairman of the department of anatomy of the University of Missouri, and later he became, in addition, assistant dean, acting dean and, in 1930, dean of the School of Medicine. In 1933 he again returned to New England as professor of anatomy and chairman of the department of anatomy of Yale University School of Medicine.

Professor Allen's first interest in research pertained to the problem of oogenesis. At a time when it was generally assumed that the female mammal was born with a full quota of ova he demonstrated that ova could and did arise after birth and even during sexual maturity. While undertaking these, now classical

studies, he was struck by the relation between growth and secretory phenomena in the vaginas and uteri and the development of the ovarian follicles. Further studies revealed that growth and regression of the follicles were associated with all the superficial manifestations of the estrous cycles. Not satisfied with a mere morphological correlation between the development of the follicles and growth of genital tissues Professor Allen, in collaboration with his friend in biochemistry, Dr. E. A. Doisy, successfully demonstrated an active estrus-producing substance in cell-free liquor folliculi of large follicles and in lipoid soluble extracts of the liquor. They were the first to demonstrate convincingly the existence of an active ovarian hormone in the absence of living ovarian tissues.

Shortly after the discovery of the "ovarian" follicular hormone Professor Allen became chairman of the department of anatomy at the University of Missouri. During the next several years he continued experiments on the biological activities, distribution and some chemical characteristics of the "primary ovarian hormone" in collaboration with Dr. Doisy. In addition, in spite of his increased teaching and administrative responsibilities, he undertook experiments on the action of the ovarian hormones in primates. He observed that hormonal factors modifying the accessory genital tissues during the monkeys' menstrual cycles are fundamentally comparable to those regulating the estrous cycles of the rodents. Uterine hemorrhage followed the cessation of adequate ovarian hormonal treatment or the ablation of the ovaries when performed at the proper time.

His early convictions that the ovum is "the dynamic center of the follicle" persisted throughout his life; he left two partially completed manuscripts dealing in part with such studies. This interest in ova undoubtedly prompted his collaboration with Dr. J. P. Pratt at Henry Ford Hospital in Detroit. They obtained the first living human ova from the uterine tubes of women operated upon at appropriate times during the menstrual cycle. They also undertook the first clinical experiments with the "ovarian follicular hormone."

The growth-stimulating action of estrogens on the genital tissues undoubtedly led Professor Allen to study their action on neoplastic growths and upon carcinogenesis. At Yale he fostered enthusiastically many investigations on the influence of steroid hormones upon carcinogenesis. He was especially interested in the influence of estrogens on the malignant transformation of the uterine cervix. His interest in the growth-stimulating capacity of the ovarian hormones was further indicated by the use of the

mitosis-accentuating drug, colchicine, in studies on the genital tissues.

During the brief span of twenty-two years Professor Allen contributed over 140 publications of original investigations. In addition he edited and also contributed to the first edition of the book "Sex and Internal Secretions." The editorship of the second and larger edition was shared with two former associates at St. Louis, Dr. E. A. Doisy and Dr. C. H. Danforth. The number of researches he undertook personally was small compared to the many which could be attributed directly to the encouragement and enthusiasm he inspired among his students, graduate students and associates. He was more than generous in bestowing credit for the success of investigations upon his associates.

Honorary doctor of science degrees were conferred upon him by Brown University in 1935 and by Washington University in 1942. He was to receive an honorary doctor of laws from the University of Missouri this spring. In 1937 he was awarded the Legion of Honor in Paris where he was guest of the Singer-Polignac Foundation at a colloquy on the "Sexual Hormones." In 1941 he was honored by the Royal College of Physicians of London when they conferred upon him the Baly Medal for researches on the female sex hormones. At that time it was so appropriately stated that "his contributions to the subject form an essential foundation to modern knowledge of the endocrine action of the ovaries."

He was a member of the American Association of Anatomists, American Association for the Advancement of Science, American Society of Zoologists, Association for the Study of Internal Secretions, American Association for Cancer Research and other scientific organizations. He always enjoyed the meetings of these groups; here he had an opportunity to greet older friends and to meet new ones. Many young investigators will always remember the encouragement his friendly and stimulating comments imparted. During 1941-1942 he served as president of the Association for the Study of Internal Secretions and at the time of his death was president of the "Anatomists."

Professor Allen volunteered for service in the Coast Guard Auxiliary after the present war began. The "Skipper's" many sailing experiences had familiarized him with the irregular segment of Connecticut's coast line which his crew patrolled one day and night each week. When death struck he was on patrol duty with a unit of the flotilla in which he served as junior commander and operations officer.

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