UNVEILING OF THE BUST OF HENRY FAIRFIELD OSBORN AT THE AMERICAN MUSEUM OF NATURAL HISTORY[1]

THE unveiling of the bust of Henry Fairfield Osborn and the opening of the new Hall of North American Mammals are appropriately brought together in one meeting. To Osborn's enthusiasm and unconquerable energy we owe this entire memorial building, dedicated to his friend and fellow-naturalist, Theodore Roosevelt. This building in turn forms a perfect setting for the new hall, which is filled with superb mounts of the larger North American mammals in their native haunts—beloved alike by Roosevelt and Osborn. Finally it was Osborn's life-long admiration of the larger mammals, living and extinct, which attracted to him such men as Madison Grant, Harold E. Anthony and James L. Clark, who have made Osborn's dream a glorious reality.

Osborn's scientific studies on fossil mammals began in 1877, when he and several of his classmates at Princeton, including his close friend and colleague, William Berryman Scott, made their famous first expedition to the Bridger Eocene basin of Wyoming. Here they discovered enough strange extinct forms of mammalian life to give them an uncontrollable urge to discover more. From this expedition sprang a long and ever-branching system of explorations, at Princeton under Scott and at the American Museum under Osborn. From the Flaming Cliffs of the Gobi Desert and the withering slopes of the Siwaliks in India to the frozen soil of Alaska, many a "valley of dry bones" has heard the clang of the explorer's pick and yielded up its dead. Under the spell of the prophet the dry bones came together and thus it happened that in our temple of science many an ancient leviathan rears his mighty frame before us.

All this and much more was set in motion by Osborn, who often went into the field himself; but he always gave full credit to his captains and other men whom he had inspired and trained in the science of paleontology. In such a roll of honor he would undoubtedly himself inscribe the names of Matthew, Granger, Brown, Lull, Forster-Cooper, Andrews, Frick. And among the younger men of to-day are several to whom he was happy to entrust the future of paleontology.

As a student of Huxley and a disciple of Darwin, Osborn developed a broad interest in many branches of the biological sciences, as shown in his general work "The Origin and Evolution of Life"; but his most intensive work was in the field of mammalian paleontology. His first important memoir was a systematic revision and study of the fossil teeth and jaws of the tiny mammals which were the contemporaries of the dinosaurs. Quite early (1888) began his interest in the evolution of mammalian molar teeth. Cope had already supplied the first key to the interpretation of the origin of the complex folds on the surface of the crowns of the molar teeth of herbivorous mammals. Osborn very successfully used this "tritubercular key," as he called it, to decipher the historical stages in the evolution of the molar teeth in the families of the horses, rhinoceroses, titanotheres, tapirs and many others. Even at the present time, making all due allowances for later discoveries and corrections, this Cope-Osborn theory is widely and usefully applied by many paleontologists.

In his later years Osborn undertook to prepare a series of great monographs on the histories of the families of horses, titanotheres and proboscideans or mastodonts and elephants. In view of the heavy demands on his time from many other directions, his achievements in this field were truly enormous. The monograph on the titanotheres, numbering 953 large quarto pages, 797 text figures and 236 plates, was published in 1929. The great two-volume monograph on the Proboscidea was not completed until long after his death, the second volume having been published last month. But apart from one signed chapter on the geology of the Proboscidea, which is contributed by Dr. Colbert, one of Professor Osborn's former assistants, all the essential parts of this monograph are exclusively his own and they have been assembled and edited according to his own plan by his former secretary, Miss Mabel R. Percy.

These two great works stand out among the 940-odd entries in his bibliography and will be consulted as long as paleontology remains a living science. In spite of the vast complexity of the family tree of the proboscidea and of the many gaps that still remain in the record, this monograph presents cumulative evidence that the molar teeth, tusks and other parts of the ancestral elephants have become modified in the various ways described by Osborn. But those who prefer to ignore or to ridicule such evidence for the reality of evolution as an historical process will doubtless continue to rely upon their dialectic skill and strive to prove that evolution is not a fact because it is impossible.

Osborn's greatness as a scientist depended upon his greatness as a man. His vision, enthusiasm, convic-

[1] Addresses at the unveiling of the bust of Professor Osborn, April 8, 1942.

tion, persistence, persuasiveness, tolerance and restraint made him successful both as leader and investigator. Indeed those of us who were close to him as a scientist immediately felt and responded to his benign influence as a man.

The portrait in bronze by Joy Flinsch Buba, which will presently be unveiled, while almost Olympian in its impression, will bring us face to face with Osborn the scientist, philosopher and friend, as we knew him in his later years. But this vital record in bronze may also suggest to us the young Osborn, fresh from his contact with Darwin and Huxley, and already inspired with the first vision of evolution, which culminated in his monograph on the Proboscidea.

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THE contribution which men make to the advancement of a civilization can never be accurately assessed and least of all by contemporaries who inevitably tend to exaggerate the importance of existing conditions which often prove ephemeral. Moreover, the seed which men sow frequently flowers long afterward and is consequently overlooked during their lifetime and immediately thereafter. Furthermore, acts, ideas, convictions which may elicit current criticism and disparagement not infrequently prove later to have been abundantly justified. Both for what they do and for what they fail to do, men are often misjudged and the near view of them is by no means to be regarded as entirely reliable.

The man whose memory we are gathered to honor to-day is, fortunately, immune to any serious peril of lack of appreciation, although only time will approximate a just evaluation of his accomplishments. His greatest contributions live on in this great institution which he served so long and so brilliantly. As himself an eminent scientist, constantly contributing to push forward the boundaries of knowledge, by his example inspiring the members of his staff and scientists everywhere to similar achievements, not less than by his administrative ability and his talent for interesting generous benefactors in the support of this enterprise, he left an indelible imprint upon his time. He put this museum into the very forefront of the great scientific agencies of the period, stimulating throughout the nation a new understanding of the educational power of such institutions, while serving this great metropolitan community by opening ever wider to its citizens the unrivaled wealth of its superb collections. In all this undertaking he worked side by side with his loyal colleagues in the organization—*primus inter pares*.

He was deeply enamored of the term "creative" and of the idea behind it. In a sense every voluntary act that anyone performs is creative. It initiates changes in previously existing conditions, even as it was itself brought into being by preceding acts and events. Such a conception of creation is true, but it is sterile so far as concerns the situations in which Osborn was primarily interested. It is the notion of the creative which is discovered in the work of the artist, or the explorer and the research worker which embodies the ideals that Osborn had in mind and whose worth seemed to him supreme in the world of mind. The clearly formed purpose, the definitely articulated objective, the carefully planned method of attack, the tireless and ingenious pursuit of the end sought, the untiring and courageous tenacity which can not be discouraged or disheartened—these are among the important qualities which enter into the creative thinking and conduct that kindled Osborn's enthusiasm and enlisted his support.

In the work of the artist there may appear to be more of the purely spontaneous than in that of the scientific research worker, yet the greatest works of art all reveal deep underlying purposes, involving the most careful planning, and an enormous investment of tedious labor in their realization. The Parthenon, the Dome of St. Peters, Giotti's Tower, Raphael's Transfiguration, Milton's "Paradise Lost," Dante's "Divine Comedy"—one can extend the list indefinitely—are all adventures of the human spirit in the creation of enduring values into whose production have entered many of the most precious gifts of sheer intelligence.

But Osborn's interest in creative thinking was naturally not confined to the initial process of planning, nor to the merely conscientious and laborious search for new facts. It inevitably included the effort to enlarge the horizons of recognized truth, to set new discoveries in effective relation to established knowledge, to formulate fresh and broader principles, more revealing correlations than those which had previously been understood or accepted.

In this process his own work came at times under severe attack, for while the well-authenticated fact is reasonably immune to assault, the inferences based upon it, the generalizations arising out of the effort to orient it amid other data and principles, unavoidably lead to corrective interpretation at other hands. The man of sincere scientific spirit is never seriously irked by this experience, provided he be not essentially misrepresented, for much of this kind of rough and tumble is inevitable in all progress. Osborn certainly had his full share of this type of conflict and would unquestionably accept with good grace such corrections and modifications of his own views as with the passing of the years the development of scientific knowledge may involve. Nor does it follow that be-

cause his own particular views may in certain cases fail to prevail, his contribution is in any way to be held lightly. Quite the contrary is the fact. Such approximation to truth as the human mind can ever attain is always the result of the clarifying increments made by successive generations of thoughtful men.

Men possessing such a combination of qualities as those of Henry Fairfield Osborn are all too rare. The good administrator is a familiar figure, the eminent scientist has many exemplars, even the scientist of deeply religious convictions, such as Osborn held, is by no means unknown; but it is *extremely rare* to find these gifts combined in one man, and when they are conjoined with a remarkable charm of personality and sterling integrity of character, we are confronted with one of the most unusual of the benefactions of a generous Providence.

Such a man was he in whose honor we have assembled in this place he loved. A distinguished scientist, a faithful friend, a great citizen—his memory will be kept ever green as long as this institution endures.

JAMES R. ANGELL
THE NATIONAL BROADCASTING COMPANY

OBITUARY

RAYMOND DODGE

RAYMOND DODGE, A.B., Williams, 1893; Ph.D., Halle, 1896; honorary Sc.D., Williams, 1918; emeritus professor in Yale University, died on April 8 at the age of 71 years. He was born in Woburn, Massachusetts, in 1871.

In the death of Professor Dodge, American psychology has lost one of its most stalwart pioneers. Few of his contemporaries have made so fundamental contributions and had so little occasion to recant. Endowed with a fertile imagination, practical ingenuity, far-sighted perseverance and a critical and philosophical bent of mind, he became a bold and rigorous experimenter in the development of psychological techniques and in the implementation of his findings both in theory and widely varied applications. He was a level-headed and inspiring person. Young psychologists might well find in him a model of an upright scientist.

We note six distinct epochs in his career: his formative period in philosophy at Williams; his association with Benno Erdmann in Halle; the 26 years of teaching and research at Wesleyan University, Connecticut; the association with Benedict in research on nutrition in the Carnegie Institution of Nutrition; the war episode; and the professorship at Yale.

After a year of graduate work at Williams he went to Germany to continue his studies in philosophy. He there set up a life-long and intimate association with Professor Erdmann, took his doctorate under him and became his assistant and collaborator in extensive researches and publications in the field of experimental psychology of reading which he long regarded as his specific field of investigation, particularly the field of eye movements. For this he built the Erdmann-Dodge tachistoscope, the Dodge mirror tachistoscope and an apparatus for the photographing of eye movements. With each of these instruments he found scores of applications. He was the first to measure and classify eye movements and to utilize that technique in pure psychology, education, physiology, pharmacology, psychiatry and war.

In 1909–1910 he had sabbatical leave and spent one semester in the Marey Institute in Paris and another in Göttingen with the physiologist, Max Verworn. Here he also became closely associated with G. E. Müller in psycho-physics. In 1916–1918 he took leave of absence from Wesleyan and spent two years in research in Columbia University having to do mainly with neurophysiological characteristics of human variability. Later he spent one year in the nutrition laboratory of the Carnegie Institution studying the psychomotor effects of light doses of alcohol.

With the coming of the war he entered war services with extraordinary vigor. In the Navy service he invented an instrumental device for the selection and training of gunners which has had wide and effective use. Of his activities in World War I he writes in his autobiography:

> My second excursion into the applied field was during the Great War. It really amounted to a concentration of my entire scientific experience into a few months of agonizing exploitation. Probably no one else on the Psychological Committee except the chairman had the privilege of participating in so many phases of war service. I was a member of the original planning committee formed at the spring meeting of Experimentalists at Harvard, of the Psychology Committee of the National Research Council, of the Committee on Fatigue of the National Committee of Defense, and of the Committee on the Classification of Personnel in the Army. I was chairman of the Committee on Vision and of the Committee on Psychological Instruction of the Psychology Committee, Psychological Consultant of the Training Section of the Bureau of Navigation of the Navy for the selection of listeners, and, at the end of the war, responsible for the psychological side of the Lookout School at New London as Lieutenant Commander, U.S.N.R.F. Naturally I was not equally effective in all these enterprises, but all were, I think, reasonably successful. I was glad of all the opportunities for national service but especially glad to be in the anti-submarine warfare which aroused me more