of these observations he suggested "that the network of canals found in so many animal cells is the physiologic and morphologic equivalent of the vacuolar system in the plant cell." This far-reaching generalization has recently (1922) received support from the botanists, Guilliermond and Mangenot. These investigators worked with barley cells and arrived at a similar conclusion by employing methods adapted to the demonstration of the Golgi apparatus in animal cells. If further work shows that this is in truth the case, interesting and new opportunities for experimental study will be opened up of a kind essentially different from those contingent upon the discovery of the nucleus.

To come back to the starting point in our discussion of what we are pleased to call "cellular organization" which is, after all, the central problem of physiology, it is as if an inhabitant of Mars observed one of our large manufacturing plants with a powerful telescope and discovered a large and conspicuous building, and, further, that he noted similar buildings in other centers the world over, capable of changes in size and shape and of migration from place to place. It would be only natural for him to try to discover what mysterious activities go on within them. This is what we are endeavoring to do with the Golgi apparatus in animal cells. At present we see through a glass darkly, but we hope that this haziness is merely the rather invigorating cloud of mystery which usually surrounds a new development in science. We do not like to think that we are only hot in the pursuit of a phantom.

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THE NEW PEABODY MUSEUM AT YALE UNIVERSITY

THE corner-stone of the new Peabody Museum at Yale University was laid on June 18. President Angell presided, and Professor Edward S. Dana, Yale '70, chairman of the museum trustees, and curator of the mineralogical collection since 1874, laid the corner-stone. Professor Richard S. Lull, director of the museum and curator of vertebrate paleontology, spoke of the present work and future plans of the museum staff. Professor Dana referred to the fact that seven years had elapsed since the trustees agreed to surrender the old museum site in order to make possible the erection of the Memorial Quadrangle. The former Peabody Museum, opened in 1876, cost about $175,000; the new building will cost about $900,000.

Our chief duty and pleasure to-day, said Mr. Dana, is to honor the generous gentlemen who gave the original sum for our Museum of Natural History, Mr. George Peabody; also Professor Othniel C. Marsh, who collected and studied the specimens which make our collections unique; also the many other gentlemen who have worked loyally with him and since his death.

Mr. Peabody, born in Danvers, Massachusetts, in 1795, a poor boy at the start, by his own efforts and sagacity amassed a large fortune, and of this he gave away about ten million dollars before his death in 1869—an enormous sum for that time. His gifts were so numerous that no attempt can be made to enumerate them here. First in magnitude and importance was the gift of one and three quarter millions for the housing of the poor of London. This generous act was so fully appreciated in England, where Mr. Peabody spent the larger part of his life, that Queen Victoria warmly acknowledged it, and presented Mr. Peabody with a miniature of herself surrounded by diamonds and pearls. But this was only one of Mr. Peabody's generous donations. To the city of Baltimore he gave one million dollars; to the South he gave two millions and a half to assist in popular education without distinction of race or color; to many other cities and institutions he gave also most liberally. The gifts, however, which concern us to-day are those of one hundred and fifty thousand dollars each to Yale for a Museum of Natural History, and to Harvard for a Museum of American Archeology.

The Peabody Museum will always be associated with the name of Professor Othniel Charles Marsh. Not only was the fact of his being a nephew of Mr. Peabody, an important element in our securing the gift mentioned of $150,000, but by his keen scientific knowledge and by his collecting, begun even before his first expedition with students of the College in 1870, he amassed an amount of material in vertebrate paleontology that is absolutely unique. In the early years the West was an unexplored region, the localities where the fossil remains existed had never been disturbed, and much of the material had been weathered out by nature entire or in part, so that the minimum amount of labor was required for its collection. Tons of invaluable specimens in thousands of boxes came from the West, and when Professor Marsh died in 1899, the Marsh Collections were of such extent that even now with numerous assistants at work, much of the material is still to be developed. It would be a graceful thing to mention the names of his helpers, but time does not permit. Collecting and study are still going on under the supervision of the director, Professor R. S. Lull, and hardly a month passes that papers are not published on the Marsh collections. This last work is aided by the Marsh Publication Fund, $30,000 and more, left in his will primarily to complete some of the volumes he had begun or had in his mind. This particular use of the money was found to be impracticable, however, be-

cause the volumes were not far enough advanced to make it possible for others to go on with the work except on an independent basis—hence the establishment of this sum as a special fund to be used for the working out and description of the Marsh material. It is indeed fitting that the main hall of the new building in the plans as now matured should be devoted to the exhibition of the more striking of the remarkable extinct animals in the Marsh Collection. Some of them are bizarre in appearance or very large in form. The *Brontosaurus*, for example, of which we have a practically perfect skeleton, measures sixty-seven feet in length. The *Stegosaurus* and *Claosaurus* are other of our gigantic reptiles; they are the relatives of those of the Connecticut River Valley which made the so-called bird tracks of which we also have a very large collection. The work of installing the specimens, begun by Professor Marsh, carried on by Professors Beecher, Schuchert, Lull and others, has been a great enterprise, even now continued under the generous roof of the Osborn Laboratories.

The Zoological Collection is also remarkably complete and fine, especially in the marine life of our Atlantic and Pacific shores. This we owe most of all to the ceaseless labors of Professor A. E. Verrill, also simultaneously of Professor Sydney I. Smith, and recently of Professors W. R. Coe and R. G. Harrison. Professor Verrill's long connection with the work of the United States Fish Commission was invaluable to us. It would require far more time than is available now to give any adequate idea of the labors of Professor Verrill, a student of the great Louis Agassiz in the sixties, and an indefatigable worker from the beginning even to the present time, when he carries a number of years that would crush most men.

The mineral collection, a very prominent part of the treasures in the "Old Cabinet Building" on the Yale College campus, which disappeared long ago, was transferred to the museum in 1876, and has grown steadily since that time till it was packed up and moved. Every specimen was out of the building by May, 1917. This collection, with many additions not yet exhibited, will be installed in this building by the new curator, Professor W. E. Ford.

The archeological collection was also begun by Professor Marsh. It has been added to largely by the present active curator, Professor George Grant MacCurdy. It is now of great value and extent.

Professor Lull spoke in part as follows:

During this period the zoological collections have been carefully inspected, renewed and classified, and many new preparations, both of individual specimens and of habitat groups, have been carried to completion in anticipation of the new halls which they are to grace.

The department of geology, really paleontology, has been yet more active in proportion to its larger staff. About fourteen hundred out of some forty-five hundred trays of fossil vertebrates, containing many thousands of specimens in varying degree of preparation and repair, have passed through the hands of the preparators, and are for the first time entirely conditioned for exhibition, study, systematic storage or exchange. Group after group of creatures thus prepared have been catalogued and monographed, so that, aside from its present accessibility due to our more complete knowledge of its contents, the scientific data which the collection has yielded have been made the subject matter of more than one hundred technical papers, which have appeared or are ready for publication. In addition seven skeletons of pre-historic animals of moderate size have been mounted, some of them embodying original ideas of technique as yet unattempted elsewhere.

The invertebrate collections have been likewise reworked to as large an extent as time and the available labor permitted, and have been also the source of scientific enlightenment to the world. During the disembodied period the collection has increased by purchase, expedition and gift, some of the results of which filled sorely felt gaps in our study and especially our exhibition series. I can mention only the collection of Permian insects—which, excepting Sellard's, probably equally large, is the greatest in the world—gathered by Professor Dunbar; the materials illustrating European pre-history assembled by Professor MacCurdy; the beautiful collection of American Indian relics made by Colonel Charles H. Bigelow and given by Mrs. Bigelow; the Yale Peruvian collection presented through Director Bingham; and lastly, because of its supreme importance, the marvelous collection of the heads and skins of the vanishing great mammals of the world, presented by Mr. Thomas Cardeza.

A year should see the completion of this fabric with its nine halls for exhibition, in which the collections will be most carefully installed in such a way that he who visits them can view the orderliness and continuity of Nature and observe for himself the results of what Henry Van Dyke calls the "Divine Law of Evolution." These halls will be used not alone by Yale students, although as a university museum the chief aim is for their teaching, but the other duty to the city is not lost sight of, for New Haven has no civic museums, save that of the New Haven Colony Historical Society, as have many of the other cities of the world, but relies on the university collections to aid in the dissemination of truth to her people. A direct appeal will be made to the visiting public, but more especially to the young citizens of our public schools.