

fusion. At the suggestion of Professor Osborn, Mr. J. W. Gidley, of the American Museum, has undertaken a complete revision of all the types. It is found that the chief characters used in definition by Owen, Leidy and Cope are largely invalid. The teeth patterns only subject to a wide range of individual variability, and it is an absolute law that the upper portion of the crown is not only more complex, but differs absolutely in proportion from the lower portion; the molar teeth of a young horse thus present essentially different characters from those of an old horse, and ignorance of this fact has vitiated most of the previous definitions. This very careful revision results in the apparent determination of the valid species as follows: *Equus fraternus*, a small horse from the southeastern States; *E. complicatus*, about the size of an ordinary draught horse, from the southern and middle western States; *E. occidentalis* from California, of the same size as the above; *E. pacificus*, a very large animal characteristic of middle California and Oregon; *E. conversidens* from the Valley of Mexico and *E. tau* the smallest true horse, also from the Valley of Mexico; *E. semiplicatus* from western Texas, closely resembling *E. asinus*; *E. pectinatus* from the Port Kennedy bone cave of eastern Pennsylvania. *E. scotti* from the Staked Plains of Texas. The latter is a long-faced type of horse about the size of the largest western pony, but with a longer body, a much larger head, a shorter neck and back and steeply sloping sides, shaped very much as in the ass or quagga. The type of this species is now mounted in the American Museum of Natural History (see Fig. 1). It is the first complete skeleton of a Pleistocene horse discovered in America. It was found in association with four other skeletons, remarkably well preserved. The largest species of horse herein recorded is *E. giganteus* Gidley; sp. nov., the teeth exceeding by more than one third the diameter of those of the largest draught horses.

H. F. O.

#### THE BICENTENNIAL COMMEMORATION OF YALE UNIVERSITY.

THE imposing exercises celebrating the two hundredth anniversary of the foundation of Yale College took place last week in accordance

with the program already published in this Journal. As President Northrop pointed out in his address, one hundred and five graduates of Yale have been president of a college; and eighty-five different colleges have at some time had a Yale graduate for president. Yale furnished the first president of at least eighteen colleges—Princeton, Columbia, Dartmouth, Georgia, Williams, Hamilton, Kenyon, Illinois, Wabash, Missouri, Wisconsin, Beloit, Chicago, California, Cornell, Western Reserve and Johns Hopkins. One of the most interesting addresses, given by Dr. Daniel C. Gilman, of the class of '52 and for twenty-five years president of the Johns Hopkins University, is published above.

The doctorate of laws was conferred on President Roosevelt and forty-six others, including the following men of science and college presidents:

John Harvard Biles, Professor of Naval Architecture in Glasgow University.

John Shaw Billings, Director of the New York Public Library.

Charles William Dabney, President of the University of Tennessee.

David White Finlay, Professor of the Practice of Medicine in Aberdeen University.

Jacques Hadamard, Adjunct Professor in the Faculty of Science at the University of Paris.

Samuel Pierpont Langley, Secretary of the Smithsonian Institution.

Albert Abraham Michelson, Professor of Physics in the University of Chicago.

William Osler, Professor of Medicine in Johns Hopkins Medical School.

Henry Smith Pritchett, President of the Massachusetts Institute of Technology.

Ira Remsen, President of Johns Hopkins University.

Ogden Nicholas Rood, Professor of Physics in Columbia University.

Wilhelm Waldeyer, Professor of Anatomy in the University of Berlin.

James Burrill Angell, President of the University of Michigan.

William Peterson, Principal of McGill University.

Seth Low, ex-President of Columbia University.

Jacob Gould Schurman, President of Cornell University.

Franklin Carter, ex-President of Williams College.

William Rainey Harper, President of the University of Chicago.

William Curtis Harrison, Provost of the University of Pennsylvania.

Francis Landey Patton President of Princeton University.

Benjamin Ide Wheeler, President of the University of California.

#### SCIENTIFIC NOTES AND NEWS.

THE National Academy of Sciences will hold a scientific session at the University of Pennsylvania, Philadelphia, beginning on Tuesday, November 12, at 11 a. m. A special stated session for the transaction of business will be held on November 13.

PROFESSOR GEORGE J. BRUSH, emeritus professor of mineralogy and formerly director of the Sheffield Scientific School of Yale University, received a loving cup from some of the former graduates, on the occasion of the recent bicentennial exercises.

THE first autumn meeting of the American Academy of Arts and Sciences was held at the house of Mr. Alexander Agassiz, president of the Academy, in Cambridge, Mass. After an introduction by the president and a statement for the Rumford Committee by Professor Cross, the Rumford medals were presented to Professors Barus and Thomson who responded with brief remarks. Mr. Agassiz then gave an account of the *Albatross* expedition to the tropical Pacific. George Wharton Pepper, of Philadelphia, was elected an associate fellow of the Academy.

THE Franklin Institute, of Philadelphia, has awarded to Dr. Porter Shimer, of the department of chemistry, Lafayette College, the John Scott legacy medal and premium for his improved jacketed crucible.

THE second annual Huxley lecture of the Anthropological Institute was delivered by Dr. Francis Galton, F.R.S., on October 29, his subject being 'The Possible Improvement of the Human Breed under the Existing Conditions of Law and Sentiment.'

THE Council of the London Mathematical Society for the ensuing year is as follows: *President*, Dr. Hobson; *vice-presidents*, Professor W. Burnside and Major MacMahon, R.A.; *treasurer*, Dr. J. Larmor; *honorary secretaries*, R. Tucker and Professor Love; *other members*, J.

E. Campbell, Lieut.-Colonel Cunningham, R.E., Professor Elliott, Dr. Glaisher, Professor M. J. M. Hill, H. M. Macdonald, Professor L. J. Rogers, A. E. Western, E. T. Whittaker and A. Young.

DR. C. H. GILBERT, of the department of zoology at Stanford University, has been appointed to take charge of the deep-sea investigations of the United States Fish Commission about the Hawaiian Islands. He will leave on the Government ship *Albatross* about December 1.

THE Navy Department has selected Lieut.-Commander W. H. H. Southerland to succeed Capt. C. C. Todd as chief hydrographer of the navy, and orders have been issued detaching him from the command of the *Dolphin*.

WE regret to learn that Mr. Thomas Meehan, the well-known horticulturist, is seriously ill.

DR. THEODORE HOUGH, of the Biological Department of the Institute of Technology, is at his Virginian home convalescing from a long attack of typhoid fever.

AN intercollegiate geological excursion was made to the Westfield valley in Central Massachusetts on Saturday, October 19, for the purpose of studying the formation of river terraces and the influence of rock ledges on their development. The excursion was under the leadership of Professor W. M. Davis, and was attended by forty-six teachers and students from twelve institutions—Yale, Amherst, Wesleyan, Williams, Mass. Institute of Technology and Harvard; Milton and Worcester Academies, Springfield High School and Westfield, North Adams and New Britain Normal Schools. Professors B. K. Emerson, H. E. Gregory, W. N. Rice, and R. T. Jackson were members of the party.

MRS. STANFORD has returned to San Francisco after a journey to Egypt, where she purchased for the Stanford Museum a valuable collection of Egyptian antiquities.

MR. H. KATO, of the Japanese Department of Agriculture, is at present in the United States, with the purpose of studying our fisheries.

DR. D. MORRIS, the British commissioner of agriculture for the West Indies, has returned to Barbadoes after a visit to London.