asking where you get the authority to make such a statement. I suppose Mr. Hatcher has never visited Dog Creek near the mouth of the Judith River, or read Professor Cope's paper on the Judith River region, with a cut illustrating this valley of Dog Creek. I was with the Professor when he made the sketch from which the illustration was made. I also know that the great bed of black shale filled with beds of soft coal was called Fort Pierre by Professor Cope, and that I found several bones of Mosasaurs in it resembling *Platecarpus,* that the buff-colored sandstone on top was called Fox Hills by Professor Cope. On top of these formations were the Judith River Beds, in which we found great numbers of the cast-off teeth of Dinosaurs. I there found the new ray *Myledaphus bipartitus* Cope, and many fragmentary shells of *Trionyx,* etc. On top of all was a bed of oysters. We got no complete bones, I believe, here of Dinosaurs. The two new species I found of *Monoclonius* were near Cow Island, about fifty miles down the river. I write for information. Is not Mr. Hatcher wrong in his correction? We found no Mosasaur bones in the vicinity of Cow Island. Would not the finding of these animals at Dog Creek prove the Fort Pierre age? We have similar deposits on top of the Niobrara in western Kansas that contain many Mosasaurs."

HENRY F. OSBORN.

A NEW DIVISION OF THE UNITED STATES GEOLOGICAL SURVEY.

A NEW division, to be known as the Division of Hydrology, has recently been organized by the Hydrographic Branch of the United States Geological Survey. The work of the division will include the gathering and filing of well records of all kinds, the study of artesian and other problems relating to underground waters, and to the investigation of the stratigraphy of the water-bearing and associated rocks. In addition to the gathering of statistics relating to the flow, cost, etc., of the wells, it is hoped in the future to give especial attention to the geological features which govern, or which are related in any way to, the supply of water.

The division will be subdivided into two sections, the eastern and the western, the first embracing the Gulf and Mississippi River states and the states to the east, and the second embracing the remaining ('reclamation') states and territories, or those having public lands. The charge of each section has been assigned to a geologist, the western section to Mr. N. H. Darton and the eastern section to Mr. M. L. Fuller. The office details are in charge of Mr. Fuller.

The sections will be still further subdivided, each state, or group of adjacent states, constituting a district, in which the work of collecting data and of the investigation of the problems relating to underground water will be in charge of a geologist employed for the purpose.

In the western section it is expected that the study of the geological structure will be followed by the sinking of wells by the survey, the aim being to test such of the arid or semi-arid regions as appear to present conditions favorable for artesian water, with a view to their ultimate development for agricultural purposes.

SCIENTIFIC NOTES AND NEWS.

DR. L. EMMETT HOLT, secretary of the board of directors of the Rockefeller Institute for Medical Research, has made a statement in regard to its plans. In addition to the $200,000 given by Mr. J. D. Rockefeller in 1901 for current uses, he has now given $1,000,000 for land and buildings, and it is understood that he is prepared to contribute such additional means as the needs of the institution demand. Dr. Simon Flexner, professor of pathology at the University of Pennsylvania has been elected director of the laboratory.

IT is reported in the daily papers that Mr. Marshall Field has offered to erect a museum on the Lake Front Park, Chicago, which may cost as much as $10,000,000.

A BILL has been introduced at Albany at the request of the State Commissioner of Lunacy, appropriating $300,000 for the con-

struction of a psychopathic hospital in New York city.

At the Founder's Day celebration of the University of Pennsylvania, the degree of D.Sc. was conferred on President Alex. C. Humphreys, of Stevens Institute of Technology. The address was made by Dr. S. Weir Mitchell.

Dr. E. A. Kennelly, of Harvard University, lectured on February 18 before the New York Electrical Society on the laying of the cable across the Gulf of Mexico.

Professor Charles A. Doremus, of the City College, New York city, lectured at the college on February 21 on the life and scientific work of Robert Bunsen. The lecture was given under the auspices of the Cooper Union Chemical Society.

John H. Barr, professor of machine design at Cornell University, is to become manager of the Smith Premier typewriter works at Syracuse.

The Executive Committee of the Illinois Wesleyan has granted Professor J. Culver Hartzell eighteen months leave of absence to pursue his investigation on conditions of fossilization in Germany. He sails from New York on March 18.

Reuter's agency states that Dr. Sven Hedin, the Swedish explorer, delivered a lecture on February 7, to the Geographical Society of Berlin upon his recent journeys in Central Asia and Tibet. During his lecture Dr. Sven Hedin gave some description of the Chinese writings he had discovered in a ruined city on the shores of Lake Lak-nor. The sinologist, Dr. Himle, of Wiesbaden, to whom they had been sent for translation, was of opinion that they pointed to the existence of a flourishing Chinese community about A. D. 250 on the spot marked by these ruins. At the conclusion of the lecture Professor Hillman announced that the German Emperor had conferred on Dr. Sven Hedin the second class with the star of the Prussian Order of the Crown. Dr. Sven Hedin was elected an honorary member of the Berlin Geographical Society, and was presented with the golden 'Nachtigal' medal which was founded in memory of a well-known Central African explorer.

Dr. George B. Shattuck, professor of physiographic geology of the Johns Hopkins University, and secretary of the Baltimore geographical Society, has been authorized by the directors to organize an expedition for a systematic scientific survey of the Bahama Islands.

Dr. F. B. Loomis, of Amherst College, will this summer conduct an expedition for the collection of fossils to the Bad Lands of South Dakota.

The Imperial Academy of Science of St. Petersburg will send an expedition to search for Baron Toll, who is exploring the Siberian coast line, and who was reported on November 21 to have been cut off from the coast by early winter ice in New Siberia. Lieut. Koltchak, who was with Baron Toll will command the expedition.

The Field Columbian Museum, Chicago, has arranged a course of lectures on science and travel for Saturday afternoons at three o'clock, as follows:

March 7—'The Crow Indians of Montana,' Mr. S. C. Simms, Assistant Curator, Division of Ethnology.

March 14—'Diamonds and Diamond Mining,' Professor O. C. Farrington, Curator, Department of Geology.

March 21—'The English Sparrow,' Dr. J. Rollin Slonaker, University of Chicago.

March 28—'A Tour of the Plant World—Japan,' Dr. C. F. Millspaugh, Curator, Department of Botany.

April 4—'Swimming Reptiles,' Dr. S. W. Williston, Associate Curator, Division of Paleontology.

April 11—'Mining in the Southern Appalachians,' Mr. Henry W. Nichols, Assistant Curator, Department of Geology.

April 18—'Our Household Insects,' Mr. W. J. Gerhard, Assistant Curator, Division of Entomology.

April 25—'Experimental Agriculture in Russia,' Mr. Frederick W. Taylor, Chief of the Department of Agriculture, St. Louis Exposition, 1904.

The medical papers of Ithaca state that the epidemic of typhoid fever at Ithaca has resulted in the death of ten students of Cornell University. Ten professors and instruct-

ors are ill with the fever. The epidemic is, however, now abating.

A CIVIL service examination will be held on March 10 for the position of aid in the Division of Mollusks, U. S. National Museum, with a salary of $1,000. On April 7 and 8 there will be an examination to fill positions as hydrographic aid in the U. S. Geological Survey, at salaries of $65 and $70 a month. It is stated that these appointees will be eligible for future promotion as assistant engineer after one or two years' service in the field.

WE learn from the *Electrical World* that at a meeting of the Fritz Memorial Committee, held in New York on January 23, the announcement was made that the four national engineering societies have appointed the following as their representatives on the board of trustees of the Fritz Medal: American Society of Civil Engineers, J. James R. Croes, New York, one-year term; Robert Moore, two-year term; Alfred Noble, New York, three-year term; Charles Warren Hunt, New York, four-year term. American Institute of Mining Engineers, E. E. Olcott, New York, one-year term; E. G. Spilsbury, New York, two-year term; James Douglas, New York, three-year term; Charles Kirchhoff, New York, four-year term. American Society of Mechanical Engineers, Gaetano Lanza, Boston, Mass., one-year term; John E. Sweet, Syracuse, N. Y., two-year term; Robert W. Hunt, Chicago, Ill., three-year term; S. T. Wellman, Cleveland, Ohio, four-year term. American Institute of Electrical Engineers, Arthur E. Kennelly, Cambridge, Mass., one-year term; Carl Hering, Philadelphia, Pa., two-year term; Charles P. Steinmetz, Schenectady, three-year term; Charles F. Scott, Pittsburgh, Pa., four-year term.

COMMANDER W. H. H. SOUTHERLAND, head of the Hydrographic Office of the Navy Department, contributes to the *National Geographic Magazine* for February an article defining the work of this great geographic bureau. At the present time the Hydrographic Office has in its possession nearly 1,200 engraved chart plates and about 50 photographic chart plates. These 1,250 plates have all been constructed from the results of original naval surveys; from geographical and cartographical data reported by the commanding officers of vessels in the naval service; from information collected by the branch hydrographic offices from incoming mariners of all nationalites, and also from the geographical information that comes into the custody of the Navy Department through the prosecution of surveys by foreign governments. These charts represent about one-third of what are actually necessary for a complete set of navigational charts of the world for the use of the naval and shipping interests of the United States. It must not be understood, however, that if we were to become possessed of engraved plates representing the charts now issued by all other nations we would be able to produce navigational charts covering the world's entire water area. Very much remains to be done before the hydrographic features of the world can be so chartered as to warrant the statement that dangers to navigation due to lack of knowledge of geographic positions and correct soundings have been reduced to a minimum. There are numerous places in the West Indies which we know to be inaccurately charted, and this same statement applies to locations in nearly all parts of the world. In the North Pacific Ocean alone there are thousands of reported dangers. Many of these are probably either inaccurately located or do not exist, but all the same they are a hindrance to navigation through the anxiety or loss of time which the fear of their possible existence causes to shipmasters. Fortunately, little by little the national vessels of the Great Powers are either accurately locating or disproving the existence of many of these.

As a result of an investigation along the Colorado River, made in January, 1902, by the hydrographic branch of the United States Geological Survey, the extent of the alluvial bottom land between Camp Mohave and Yuma was found to be from 400,000 to 500,000 acres. Extended surveys were begun November 1, last, to determine the area and quality of these

bottom lands, the possibility of diverting water to them, and the probable expense of their reclamation. The average rainfall at Camp Mohave is only 5.99 inches per annum, and at Yuma it is 3.06 inches per annum, while the temperatures are such as to provide twelve growing months in the year. The Colorado River derives its principal source of water supply from the melting snow on the high mountains of Utah, Colorado and Wyoming. It reaches the stage of maximum flow—approximately 50,000 cubic feet per second—in the months of May and June, when the demand for irrigation is normally the highest; its minimum flow—about 4,000 cubic feet per second—occurs in the months of January and February, at the time of least demand. The opportunities for storage on this stream are very great. The silts of the river are difficult to handle in canals, but the fertilizing properties which they have are such that lands irrigated with these muddy waters will never require further fertilization. Mr. R. H. Forbes, of the Agricultural Experiment Station at Tucson, Ariz., who has made a study of the silt in the Colorado River, has pointed out that this stream resembles the Nile in many particulars. Like the great river of Egypt, the Colorado is subject to an annual summer rise sufficient to overflow the extensive areas of its borders and delta lands. These high waters are rich in fertilizing sediments, are exceptionally free from alkaline salts, and come at an opportune time for irrigation. Mr. Forbes maintains that when the Colorado is understood and utilized as successfully as the greater and better-known Egyptian stream, it will be recognized as the American Nile—the creator of a new country for the irrigator, the mother of an occidental Egypt.

UNIVERSITY AND EDUCATIONAL NEWS.

By the will of the late Professor Sylvester Waterhouse, of St. Louis, Washington University received $25,000, and Harvard University and Dartmouth College each $5,000. The bequest to Washington University is to accumulate until the year 2000.

Sir William Macdonald, of Montreal, has donated a further sum of $4,500 to the Macdonald Institute at the Ontario Agricultural College, Guelph, to complete the furnishing. This makes a total of $175,000 given by Sir William to this institute.

S. M. Inman, of Atlanta, Ga., has given $25,000 toward the proposed presbyterian university to be erected in that city.

The new library building given to Trinity College at Durham, N. C., by Mr. James E. Duke, was formally opened on February 23. The dedicatory address was given by Mr. Walter H. Page of New York.

The Association of the Colleges and Preparatory Schools of the Middle States and Maryland will hold its next annual meeting at Columbia University, November 27 and 28.

At the mid-winter commencement of the University of Nebraska, on February 16, 1903, degrees were conferred as follows: Bachelors of Arts, 17; Bachelors of Science, 7; Doctor of Medicine, 1; Master of Arts, 1; Doctor of Philosophy, 1. Eleven graduates were given University Teachers' certificates. The thesis presented by the candidate for the degree of Doctor of Philosophy, Haven Metcalf, was in botany, and consisted of a discussion of the cause and nature of a disease of sugar-beets, to which the name of 'sour rot' has been applied.

The chair of physiology at the Harvard Medical School, occupied by Professor H. P. Bowditch, will hereafter be known as the George Higginson Professorship.

Dr. George B. Halsted, late of the University of Texas, has been elected to the chair of mathematics of St. John's College, Annapolis, Md., to succeed Professor John L. Chew.

Dr. Alexander Johnson, dean of the faculty of arts and professor of pure mathematics, and the Rev. Dr. J. Clark Murray, professor of mental and moral philosophy, have resigned their appointments at McGill University, to take effect September 1, 1903. They retire in accordance with the pension scheme formulated last year by the board of governors.