moved about and talked with several of the guests, among others, Professor E. C. Pickering, director of the Harvard Observatory. They discussed in particular the photographs of stellar spectra Dr. Draper had obtained. Professor Pickering expressed to Dr. Draper his great interest in that work and offered to measure these photographs if they could be sent to Cambridge. Almost immediately after the dinner Dr. Draper was seized with a congestive chill, followed by pneumonia which proved fatal a few days later.

Mrs. Draper, who was in deep distress after this sudden loss, desired to establish some memorial to her husband, and for a few years contemplated the erection of an observatory in New York City. This plan proved impracticable, however, and in 1885, she visited the Harvard Observatory, where Professor Pickering was already photographing stellar spectra along the same line as the work which she considered the most important her husband had done. She thereupon decided to found the memorial in connection with the Harvard Observatory, and gave generous sums each year for its prosecution. At first she thought only of continuing the researches on stellar spectra, but in 1887 she decided to extend the plan to include all available facts about the constitution of the stars. She not only gave liberally of her means to carry on this work, but she always took a great personal interest in it. Until deterred by failing health she visited Harvard Observatory regularly, and personally inspected the progress of the work, giving advice about matters of policy, and being greatly interested in the actual inspection of various stellar spectra. All peculiar or new types were submitted to her, and she often exclaimed with girlish eagerness, "How interesting it must be to do it!"

Mrs. Draper was a friend to many scientific men and frequently gave elaborate entertainments in her spacious home. The old laboratory in New York was fitted up as a lecture or exhibition room and could seat two hundred people. Here many famous men came to lecture to scientific societies and invited guests. Here various scientific exhibitions were placed when she entertained such societies as the National Academy or the American Astronomical Society. It is quite unusual for women of wealth to entertain in this manner. Few who have such beautiful homes, have such a desire or interest.

The results of the Henry Draper Memorial have been varied. The first catalogue giving the spectra of a large number of stars was published in 1890, and was called the Draper Catalogue. This contained 10,351 spectra. Following closely upon this came detailed discussions of about 5,000 spectra of the brighter northern and southern stars. In 1911, observations were commenced for a New Draper Catalogue, which will contain the spectra of at least 200,000 stars situated over the entire sky. In this work Mrs. Draper was greatly interested until the very last, and wrote encouragingly about its progress.

In the course of the Draper Memorial work, various discoveries have been made, such as 10 novæ, more than 300 variable stars, 59 gaseous nebulæ, 91 stars of Class O, and a large number of peculiar spectra. Among the greatest results may be mentioned, the establishment of the true order of stellar evolution, and such discoveries as the connection between variability and changes in spectra, the additional series of hydrogen lines, and the existence of spectroscopic binaries.

Who can predict to what further uses the great collection of plates will be put or what further increase in our knowledge of the sidereal universe will be made by means of the generous endowment left in memory of Henry Draper by his devoted and noble wife.

Annie J. Cannon
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A NEW GLACIAL PARK

Announcement has been made through the press of the gift to the New York State Museum of a plot of ground covering seventy-five acres which includes the remarkable Green Lake near Jamesville, N. Y., with its series of abandoned cataracts, rock channels and dry plunge-basins. This spot is not only extremely

picturesque, but now that the significance of its singular conformation has been pretty well worked out by the labors of E. C. Quereau, and more particularly by Professor H. L. Fairchild, it constitutes a very extraordinary, if not unique, geological record.

In the course of Professor Fairchild's work upon the Pleistocene geology of New York state, he demonstrated very clearly and in detail the accuracy of Mr. Quereau's suggestion that in the retreat of the ice mantle the outflow of the glacial waters was by way of tremendous rivers moving eastward into the Mohawk-Hudson drainage, and here one of these streams cut its rock gorge in the limestones of the Helderberg escarpment and left a series of plunge-basins beneath great cataracts which surpassed the dimensions, as they must have equalled the dignity and grandeur, of Niagara.

The Green Lake or Jamesville Lake, which lies on the property now thus reserved, is surrounded on all but its eastern side by an amphitheater of sheer limestone cliffs rising to a height of nearly 200 feet, and the depth of the lake is stated by the former owner of the property to be not less than 100 feet. While water still fills this ancient plunge-basin, it is water of a deep emerald hue, without visible outlet or inlet. Westward of this escarpment is a smaller and dry plunge-basin with its abandoned cataract cliff and with rocky channels connecting it with the larger basin, and from the Green Lake eastward is the old open discharge into the other stream courses and cataracts lying beyond Jamesville in the vicinity of Fayetteville.

Aside from the extraordinarily clear and wonderfully effective geological record displayed in this place, the spot has additional scientific interest as its rocks are the resort of many rare ferns and flowering plants which have long attracted the botanist.

The menace of commerce, expressed in the ever-increasing demand for the conversion of limestone into cement, threatened this wonderful spot, and the intervention of the donor, who saved it from destruction, is a particularly gracious act inasmuch as it conserves a place of high scientific and educational interest.

The property is given to the regents of the university for the State Museum by Mrs. Mary Clark Thompson, of New York, and presented in the name of her father, Myron H. Clark, a former governor of that state, and by her desire it is to be known as the "Clark Reservation."

It may be added that this reservation lies about four miles to the southeast of Syracuse on the Seneca Turnpike, a new state road, and is also easily accessible from Jamesville which can be reached from Syracuse by trolley.

JOHN M. CLARKE

ALBANY, N. Y.,
March 3, 1915

THE UNITED STATES GEOLOGICAL SURVEY AT THE PANAMA EXPOSITION

THE exhibit occupies a space 62 by 78 feet in the Palace of Mines and Metallurgy, flanked on one side by the exhibit of the Bureau of Mines and on another by the Alaskan exhibit, for which also the survey has been in a measure responsible. The central feature of the exhibit is a booth, containing stage-like settings of a scene, partly modeled and partly painted. The first represents an undeveloped district in the arid west being studied by the survey. Topographers are at work with their instruments on the headlands; geologists have stripped a bed of coal and are taking a sample for analysis; and other geologists are studying the rocks. In the foreground is an automatic gage beside the river that comes out of the picture toward the observer. Farther back, a stream gager is measuring the stream. In the background is a camp and pack train. The second scene shows the same district after development. The results of the stream gaging have been utilized in planning a power plant that shows in the distance and an irrigation project that covers the valley floor. The coal bed is being mined on one side; an oil field is under development elsewhere; a sandstone bed is being quarried in the foreground; mining and milling are in progress in the mountains; a town has been built, and roads, railroads, and other evidences of civilization abound.

Behind the scenes, in the same booth but