the mental life, are the products of introspection or observation. On this point there is room for difference of opinion. A large number of the processes, recognition, judgment, feeling, seem to be more closely related to introspection; the active processes, on the other hand, the comparison of divided with accumulated repetitions and perceptions, are either derived from observation or a combination of observation and introspection. In addition to these immediately observed, generally recognized mental states and functions there are immediate facts derived both by introspection and by observation aided by experiment. Such are on the one side the awareness of the different sorts of imagery, the course of association, colored hearing and the different synesthesias, and, on the other, the changes in circulation with mental operations, the slight movements, and the larger movements of expression. These and many other immediate facts of consciousness escape the untrained observer or introspector, but are needed to round out the series of mental facts and to aid in the formulation of expansions of other facts and laws.

In brief then there is room in psychology for the greatest variety of standpoints and for all methods, provided only the spirit of live and let live prevails. The science is above the individual and the individual's preference in definition and method. The definition and method in turn must grow out of the science; they are not given once and for all, and the science forced into them. Given a set of facts and laws of fairly general acceptance, the form of statement again is largely a matter of individual preference guided and tested by the interest and comprehension of the group for whom the discussion is intended. As in most sciences a mixture of explanation and theory with bare fact may be used, or bare facts may be stated and explanation follow or be omitted. Methods that are assumed by the investigators may be with advantage followed in the restatement of their results. But formulation of results and their presentation in a treatise can no more be determined by a priori principles than can the statement of definitions or the prescription of methods. In brief, my plea is for the widest liberty in all respects with a testing of everything by results rather than by formulæ or even by tradition. In the light of the tests so far available it seems to me that defining psychology as the science of behavior and the use of all methods possible under suitable precautions will lead soonest to the end of psychology, the discovery of mental laws and their explanation.

And we have no reason to be ashamed of the progress of the science. More has been done in the discovery of fundamental laws in the last sixty years than in all the preceding centuries from Thales to Fechner, and interesting problems open to our methods of approach on every hand. These laws, the immediate results of experiment, are not in dispute. They have stood the test of repeated investigation, and are accepted on all sides. There is much more difference of opinion about theories, but even here we have made progress. Except for the fact that we still take our theories very seriously, even our theories offer no more occasion for controversy than do theories on similar problems among physiologists, or zoologists or much more than between physicists and chemists.

W. B. Pillsbury

MRS. HENRY DRAPER

Anna Palmer Draper, widow of Dr. Henry Draper, died on December 8, 1914, at her home in New York City. Her name will always be honorably associated with the science of astro-

physics. It is interesting to note that the wives of two of the men connected with the beginnings of this science played such important parts in the careers of their husbands. Sir William Huggins, who first applied the spectroscope to the stars, had in his wife, the talented Margaret Lindsay, an enthusiastic and capable co-worker during many years of incessant labor. Dr. Draper was also fortunate when, in 1867, he married Mary Anna, the gifted daughter of Courtlandt Palmer, of New York City. For Mrs. Draper not only was her husband's associate in his investigations during the fifteen years of their lives together, but after his early death in 1882, she was able to provide for carrying on his work in a most efficient manner.

It is said that Dr. Draper became especially interested in astronomy in 1857, while attending the meeting of the British Association in Dublin. He was invited by the Earl of Rosse to go with a party to Birr Castle, Parsonstown, to see the famous six-foot reflector. So great was the impression made upon Dr. Draper by this giant telescope that he resolved to construct a similar, although smaller, one for himself. This he did, and in 1867 a reflector of 28-inch diameter was placed in his private observatory at Hastings-on-Hudson. In the summer, Dr. and Mrs. Draper resided at Dobbs Ferry, two miles distant, and it was their custom to drive together to the observatory for the evening work. So great was her interest that he never went to the observatory without her, and in the days of the wet plate, she herself always coated the glass with the collodion. Mrs. Draper told how sometimes after they had been to the observatory and returned to Dobbs Ferry on account of clouds, they would find the sky clearing, and would drive back again two miles to the observatory and recommence work. During the early years of their married life, Dr. Draper was experimenting with the photographs of stellar spectra with his reflector, and in May and August, 1872, he succeeded in photographing the spectrum of Vega, showing four dark lines. This was four years before Huggins obtained a photograph of the dark lines in the spectrum of this star. In 1878, Dr. Draper organized an expedition to go to Rawlins, Wyoming, for the purpose of observing the total solar eclipse of July 29. Mrs. Draper not only went with him, but also assisted in various ways. Her special duty was to count the seconds during the eclipse and lest the vision might unnerve her, she was put within a tent and therefore saw nothing at all of the wonderful phenomenon. Here she sat patiently and accurately calling out the seconds while the glorious and awe-inspiring spectacle was unfolded. Some of us remember her among those gathered on the roof of Hotel Monticello in Norfolk, Virginia, on May 28, 1900, when without instruments we merely observed the total eclipse for its beauty and grandeur. What memories it must have recalled to her of the distant western land where nearly a quarter of a century before she sat inside the tent and called out the seconds for her distinguished husband!

In the winter, Dr. and Mrs. Draper resided on Madison Avenue, New York City. Here he established a laboratory, connected with the residence by a covered passageway, where his work not dependent on the telescope could be carried on, and where his photographs could be studied. The house, which is between Thirty-ninth and Fortieth Streets, is spacious and well adapted to elaborate entertaining. When originally built by Mr. Palmer, it was the last house in New York City, and he was cautioned by his business friends against investing in property so far away from the center. Mrs. Draper remembered when the old omnibus running on Fifth Avenue went only as far as Thirty-ninth Street, so that when any one alighted and started to walk in their direction they were sure of a visitor.

In November, 1882, when the National Academy of Sciences was meeting in New York City, Dr. and Mrs. Draper entertained the members at a dinner said to have been one of the most brilliant ever given there. As a novelty, Dr. Draper lighted the table with Edison incandescent lights, some of which were immersed in bowls of water. About fifty were present, and at the close of the dinner, Dr. Draper, although suffering from a severe cold,

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.

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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