cold and damp morning; the air was not clear, and there was a film of thin clouds over all the sky. The weather records at St. Paul Observatory, five miles distant from Hamline, indicated, S. E. 6 miles per hour for the wind, 29.50 as the Barograph reading of the barometric pressure, and 20 degrees below zero as the thermograph reading of the temperature. The two 'sun-dogs' proper were *g* and *h* of the figure and were so brilliant that it was painful to look at them, and a line of intense light stretched from them outwards toward *d* and *c*. There were two circles surrounding the sun; one, the inner one, was complete; the other was nearly so, but dipped below the horizon. There were arcs of two circles turned from the sun at *a* and *b*, and at these points there was a display of prismatic colors. The large outer circle looked much like a rainbow, especially near the horizon. This latter fact seemed connected with the fact that there was almost moisture enough in the air to constitute a very fine snow.

H. L. Osborn.
Hamline University, St. Paul, Minn.,
February 20, 1899.

Degrees in Science at Harvard University.

Harvard University conferred for the first time last year the degree of 'Master of Science.' As the creation of this degree appears at first sight to be a new recognition of science, it may be desirable to point out that there are aspects under which it is, in fact, harmful to science and a retrograde movement in that university to which we look for guidance. It is, indeed, logical to have a degree between the S. B. and S. D. parallel to the A. M., but it would be equally logical and, in my opinion, far better to abolish the S. B. and S. D.

The composition of the Lawrence Scientific School of Harvard University is not made less heterogeneous by giving all its graduates the same degree. Some of the students are pursuing studies in applied science exactly parallel to those of the schools of medicine, law and theology, and should on graduation be given a technical degree signifying the profession that they have been trained to practice, *i. e.*, C.E., civil engineer, etc. Others of the students are following the same scientific studies as may be elected by students of the college who receive the A.B. The difference is that the Lawrence Scientific School may be entered with an inadequate preparation. Fortunately, plans have been adopted that will gradually raise the requirements for admission to the Scientific School to substantial equality with those of the college. At present consequently the S. B., in its sense of a liberal education based upon science, means, as compared with the A. B. for the same studies, an inadequate preparation; later it will signify a secondary education without Latin.

Students of Harvard College, as of the Great English universities, may now take the A.B. without any study of Latin or Greek at the University. This freedom of election has, as President Eliot points out in his last annual report, maintained at Harvard the relative numerical importance of the traditional degree better than in any other American institution. The A.B. is becoming almost obsolete in our great State universities. Thus at California last year among 191 bachelors only 30 were in arts, at Wisconsin among 173 only 13, etc. I regard this as unfortunate as the Ph.B. and S.B. at these universities means simply a liberal education without Greek or without Latin and Greek. It seems to me more consistent to give the A.B. for liberal studies as is done at Harvard, Johns Hopkins, Columbia, Cornell and the English universities. But of these universities only Cornell is sufficiently logical to admit that a liberal education is possible without 'small Latin' in the preparatory school. President Eliot will anticipate the course of educational progress, as he has so often done, if he will transfer the required study of English to the preparatory school, as he aims to do, and will secure the admission of students to Harvard College without Latin. The S.B., S.M. and S.D. would then be superfluous as degrees for liberal studies. I regard them as useless altogether, except that it might be desirable to give the Sc.B., simultaneously with a technical scientific degree and to maintain Sc.D. and Litt.D. as honorary degrees. In the English universities Sc. refers to science, while B.S. and M.S. refer to surgery, consequently Sc. rather than S. should be used.

At Harvard the A.M. and the Ph.D. are

given for advanced work to Bachelors of Arts, and the S.D., and since last year the S.M., to Bachelors of Science. The S.D. is given for exactly the same, scientific research and study as the Ph.D., and means the same thing, except that it is in addition a certificate of a poor preparatory education. It is no wonder that it is not popular, having been awarded only once in the past three years, while the Ph.D. has been awarded sixty-nine times. If a student comes to Harvard from a Western university, having studied Latin throughout his college course and received a Ph.B., he is apparently not eligible for the Ph.D. What would be done with a student coming with the A.B. from Cornell, but never having studied Latin, I do not know. The maintenance at Harvard of the S.M. and S.D. as second-rate degrees appears to be a needless limitation of the usefulness of its graduate school, and a wounding of science in the house of its friends.

J. MCKEEN CATTELL.
COLUMBIA UNIVERSITY.

SCIENTIFIC APPOINTMENTS UNDER THE GOVERNMENT.

WE have received notice of civil service examinations as follows:

On May 9th for Assistant Chief, Division of Agrostology, Department of Agriculture. (Salary $1,800 per annum.) The subjects and weights are as follows:

1. Agrostology.....60
2. Replies to letters on agrostology.....10
3. German and French translation.....10
4. Botany (major), or Chemistry (minor), (See Section 67, 'Assistants, Department of Agriculture, Departmental Service,' page 45 of the Manual of Examinations, revised to January 1, 1899).....20

At the same time an examination will be held for the position of Assistant in the Division of Agrostology at a salary of $1,200. The subjects and weights being:

1. Agrostology.....50
2. Translation from one foreign language (Spanish, French, German, or Italian).....15
3. Latin translation.....5
4. Botany (minor), (See section 67, 'Assistants, Department of Agriculture, Departmental Service,' page 35 of the Manual of Examinations, revised to January 1, 1899).....15
5. Education and experience.....15

On May 1st an eligible register will be established for the position of Irrigation Expert, office of Experiment Stations, Department of Agriculture, at a salary of $2,500 per annum. Subjects and weights are as follows:

1. A statement of the education, training and technical experience of the competitor.....30
2. A statement of the competitor's experience as an administrative officer, with special reference to irrigation laws and regulations.....30
3. A thesis of not less than three thousand words on a topic relating to irrigation.....20
4. A statement of not more than three thousand words setting forth a plan of irrigation investigations in the arid regions of the United States for the benefit of the farmers of those regions.....20

It will not be necessary for applicants to appear at any place for examination, but the statements and theses required may be prepared by the competitors at their homes upon forms which will be furnished by the United States Civil Service Commission upon request. Competitors will be required to furnish sworn statements as to the integrity of the work submitted by them.

Under similar conditions and on the same day an eligible register will be established for the position of tobacco expert to the Department of Agriculture. The subjects and weights are as follows:

1. Experience, including complete statement of personal experience in connection with the development of the tobacco industry of Florida.....30
2. Administrative ability, including a full statement of personal experience in the administration of work connected with the growth, purchase, manipulation and marketing of the Florida tobacco.....30
3. Two theses, of two thousand to four thousand words in length, on subjects relating to the tobacco industry.....40

On May 9th and 10th an examination will be held for the position of computor in the Nautical Almanac office, the subjects and weights being:

1. Algebra.....15
2. Geometry.....10
3. Plane and spherical astronmy.....20
4. Elements of differential and integral calculus 10