

patriotic and interested in the public welfare. He was connected with numerous scientific bodies in the city and country, and with many abroad. Though one of the youngest members of the National academy of sciences, he was one of the most effective and influential. Last summer his *alma mater* and the University of Wisconsin honored themselves and him, by conferring upon him simultaneously, but independently, the degree of LL.D.

Excepting his early death, Dr. Draper was a man fortunate in all things: in his vigorous physique, his delicate senses, and skilful hand; in his birth and education; in his friendships; and especially in his marriage, which brought him not only wealth and all the happiness which naturally comes with a lovely, true-hearted, and faithful wife, but also a most unusual companionship and intellectual sympathy in all his favorite pursuits. He was fortunate in the great resources which lay at his disposal, and the wisdom to manage and use them well; in the subjects he chose for his researches, and the complete success he invariably attained.

In person he was of medium height, compactly built, with a pleasing address, and keen black eye which missed nothing within its range. He was affectionate, noble, just, and generous; a thorough gentleman, with a quick and burning contempt for all shams and meanness; a friend most kind, sympathetic, helpful, and brotherly; genial, wise, and witty in conversation; clear-headed, prudent, and active in business; a man of the highest and most refined intellectual tastes and qualities; a lover of art and music, and also of manly sports, especially the hunt; of such manual skill that no mechanic in the city could do finer work than he; in the pursuit of science, able, indefatigable, indomitable, sparing neither time, labor, nor expense.

His loss is lamented keenly, not only by those to whom it is a personal bereavement, but by every sincere lover of truth and science. It must be long before another can be found of such abilities, means, and versatility, to carry on his unfinished work.

But it is violating no confidence to add that his wife, who for fifteen years was his untiring assistant in all his labors, who knew all his plans, and thoroughly understood them too, now hopes and intends to find some way to have his work continued, to utilize the magnificent apparatus he had collected, and so to perpetuate his memory, and keep it forever green by providing for the accomplishment of his most cherished purposes:—*Monumentum aere perennius.* CHARLES A. YOUNG.

#### THE WEATHER IN NOVEMBER, 1882.

THE monthly weather review is one of the regular publications of the United-States signal-service. Twenty days after the close of a month is allowed for the receipt of reports, at the expiration of which the review is made up and printed. The November review is an improvement over any of its predecessors, in being stitched and furnished with a neat cover, which contains the name of co-operating observers and of vessels whose officers furnish marine reports, and also a list of meteorological instruments, with the prices at which they may be obtained through the signal-office. The following may be mentioned as the noteworthy meteorological conditions of the month:—

The barometric pressure was nearly normal when compared with the November pressure of previous years. The number of minima sufficiently well marked to allow the charting of their paths is only five, an unusually small number, the average in former years being fourteen. Three of these depressions pursued an easterly track over the northern portion of the country, and two a north-easterly along the Gulf and Atlantic coasts. The latter were the most severe storms of the month.

The temperature was below the normal along the eastern coast and from the Rocky Mountains to the Pacific. In other portions the temperature was higher than the average. Frosts were frequently reported in all districts, the least number being three in the South-Pacific region; while temperatures above 90° F. were reported from Arizona and Texas. The month witnessed the closing to navigation of the upper Missouri and Mississippi rivers and the upper lakes.

There was a marked deficiency in rainfall in nearly the whole country, the principal exception being the middle Pacific coast. New England suffered most from lack of rain; the rainfall, including melted snow, amounting to

only 1.6 inches, the average for November in former years being 4.5 inches. Considerable snow was reported from northern districts, and a little from the southern states.

Among miscellaneous phenomena may be mentioned earthquake shocks, which occurred on the 7th in Wyoming, Colorado, Utah, and Kansas, and on the 14th in Missouri.

The most noteworthy feature of the whole month was the remarkable magnetic storm which occurred from the 16th to the 20th. It prevailed, not only throughout this country, but in Europe, and was characterized by extensive auroral displays. It was simultaneous with a large sun-spot, visible to the naked eye. The English journals have contained many articles upon this storm and its attendant features; but in this country extensive cloudiness prevented as complete auroral observations as would otherwise have been secured.

#### NEW TESTAMENT AUTOGRAPHS.

AN interesting and important application of the methods of the theory of probability to the criticism of the New Testament was made in a paper read by Mr. J. Rendel Harris, late a fellow of Clare College and a lecturer in the university of Cambridge, before the Philological society of Johns Hopkins university, at their meeting on the 5th of January: the results of which investigation will, if substantiated, form a new departure in textual criticism.

Attention was first drawn to the exact equality of the second and third epistles of St. John, each of which occupies 29 lines of type in the edition of Westcott and Hort; and it was remarked, that the text of these epistles probably represented an integral number of sheets of the original papyrus.

An examination was then made of the space occupied by the various books of the New Testament in the Vatican codex. This MS. is written in triple columns, each containing 42 lines to the column. Every book begins at the top of a column; but, strange to say, instead of ending according to a random distribution over the 42 lines of the columns, they show a preference for ending at the 27th or 28th lines.

Five epistles were shown to end on the 27th line, one on the 26th, and two on the 28th.

A calculation was made which showed that this was not the work of chance, but of law; and it was inferred that there was a commensurability of the books in question with one another, with the whole Vatican column, and the partial column of 28 lines.

From this was at once deduced, that the Vatican page is composed of nine smaller pages of papyrus arranged in a square, so that three go to a column, and three columns to the page. Each of these smaller pages was represented by the term V-page; so that a Vatican page is equivalent to the following notation:—

V	V	V
V	V	V
V	V	V

And, since any deviation from the form of papyrus found in the autographs would have resulted in the introduction of a random distribution of the endings, it was shown that the V-page for the books in question was approximately the page of the autograph.

A similar analysis for the Sinaitic codex, which has four columns to the page, and 48 lines to the column, revealed the existence of a smaller papyrus page employed by a number of other books. This page was represented by 12 lines of the Sinaitic column, and was denoted by S; so that the page of the MS. was equivalent to:—

S	S	S	S
S	S	S	S
S	S	S	S
S	S	S	S

By means of these two types the majority of the books of the New Testament were restored to the original sheets.

But even more remarkable was the application of the results of this inquiry to the purposes of textual criticism, and to the stichometry of the New Testament. For these we must refer to the forthcoming supplementary number of the American journal of philology, where it will be found demonstrated, that the celebrated passage of St. John in which is given the account of the woman taken in adultery is, in all probability, four lost pages of the original document of the Gospel; and that the account of the agony in the garden, which is also rejected by the critics, is a lost page of