

in his "Harmonies of the World," "The die is cast! The book is written! It can well afford to wait a century for a reader, since God has waited 6,000 years for the astronomer."—[C. A.]

WINSLOW UPTON, 1853-1914.

We regret to note the death of Prof. Winslow Upton, on January 8, in the sixty-first year of his age. He will be remembered by many in the Weather Bureau as an active member of the "Study Room" established by Gen. W. B. Hazen, as Chief Signal Officer, in January, 1881. Although Professor Upton was with us only a few years, yet his activity and his extensive knowledge contributed greatly to the usefulness of this official effort to introduce a higher scientific standard into the work of the Weather Bureau. When President Garfield appointed General Hazen the Chief Signal Officer, intrusted with the conduct of the Weather Bureau, the latter was urged by the lamented President "to give the right hand of fellowship to science as such." It was in obedience to this advice that Winslow Upton was drawn from the Naval Observatory into the Weather Bureau of the Signal Office. In 1884 he was appointed professor of astronomy at Brown University, and within a few years supervised the construction of the Ladd Observatory, where regular meteorological observations have been kept up. Upton was one of the organizers of the New England Meteorological Society in June, 1884, and most active early contributors to its bulletins. This society was supported by such eminent men as W. H. Niles, W. M. Davis, D. Fitzgerald, E. B. Weston, W. Upton, A. Lawrence Rotch, M. W. Harrington. It also exerted a decided influence in favor of the appointment of M. W. Harrington on July 1, 1891, as the first Chief of the Weather Bureau under its new scientific organization. A similar "Ohio State Meteorological Bureau" had been established April 17, 1882, by action of the State Legislature and attained great usefulness under T. C. Mendenhall as the active president of the board of directors, he being also at that time professor of physics in the State University at Columbus. In those days, under the wise administration of Gen. W. B. Hazen, great interest was manifested in the organization of independent State weather services throughout the country. (See Annual Report of Chief Signal Officer for 1881, pp. 71-72.) But this was soon transmuted into the establishment of State services under the conduct of Weather Bureau officials, and the support of the Chief Signal Officer. The stimulus given to intellectual activity by the establishment of independent services may possibly break up the quiet and homogeneity of routine climatological work, but it does far more good than harm by stimulating every man to see if he can possibly improve on what has gone before. As these independent State services have now almost entirely disappeared and are almost forgotten because merged with the general Weather Bureau official system, we have thought it important to dwell upon Professor Upton's activity in this early organization and his thorough sympathy with the desire to stimulate independent thought. The degree of Ph. D. in the German and in many American universities must be accompanied by a thesis in which the candidate illustrates his own adaptability or power of original investigation, and Prof. Upton's life gave many such evidences of his own gifts, both in astronomy and meteorology.—[C. A.]

THE DRIFT OF A TRAIN OF A BRIGHT METEOR.

Almost the only information that we can obtain with regard to the motions of the highest portions of our atmosphere comes from observing and studying the slow drift of the delicate train of light or luminous dust left behind when a bright meteor passes through the upper air.

The following note from Mr. Frise, of Sheridan, Wyo., shows that the meteor train observed by him January 12 drifted rapidly eastward as its particles settled toward the earth. We should have gained much exact knowledge from this meteor if only observers at other stations could have made records of its appearances as seen by them, but certainly we are authorized to conclude that a strong easterly wind, or possibly from the west by south, must have been prevailing in the upper atmosphere at that time. Prof. C. C. Trowbridge, of Columbia University, calls attention to the value of the information that may be obtained from the phenomena of meteor trains.

Photographic apparatus appropriate to the prompt record of such meteor phenomena has long since been designed and will, it is hoped, become available to observers during the coming year.—[C. A.]

LOCAL OFFICE, U. S. WEATHER BUREAU, Sheridan, Wyo., Jan. 14, 1914.

As the regular evening observation was being made on the 12th instant my attention was attracted to an optical phenomenon in the west unlike any before observed. No instrument was available for determining the true position, but the desire to locate as accurately as might be done by eye observation came to me at once, so that with the care which that desire prompted, the estimated position is not much in error. The altitude was about 12° to 15° and azimuth about 75° . It was first observed at 5:45 p. m. local time (105th Mer.), and at 6:05 p. m. it was very faint and disappeared at 6:07 p. m. It was apparently a chain of stars about 6° to 10° in length in

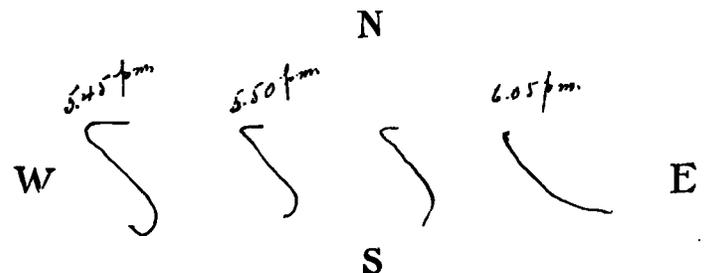


FIG. 1.—Train of meteor at Sheridan, Wyo., Jan. 12, 1914. Appearance of train at 5:45 p. m., 5:50 p. m., and 6:05 p. m.

the form of an imperfect letter S, closely resembling the figures accompanying which were drawn as the observation was made. It [the trail] was nearly upright when first seen, but as it shortened and straightened it resembled a shepherd's crook or staff by the time it had become so faint as to be scarcely discernable.

Its light was identical with that of a bright star, no color appearing at any time. With the diminishing brightness of the light it seemed to rise slightly and the lower portion at times seemed to draw up so as to shorten the figure. Whether this was due to actual motion or to an unsteady medium through which its light came was not apparent. But that the shape of the figure was

different at the close of its visibility from that seen at 5:45 is known without any doubt. On first noticing this phenomenon the impression was of a chain of stars, each separated from the next by a short space and all mingling their light into a line of white light of the shape before mentioned, but as a few minutes elapsed this appearance was not so noticeable. From a nearly upright position when first seen it had assumed one at an angle of about 45°, with the upper extremity to the left. There was no head, such as is usually seen in a comet, and one portion seemed as bright as another. Only flecks of cloud were in the sky at that time so that no obstruction interfered at any time. The width of the line of light was about that of a bright star, but in brilliancy it outshone any star in that portion of the sky. Inquiry does not as yet add the testimony of others who might have seen the phenomenon had they been out away from trees and buildings, and while it did not resemble any comet that the observer has ever seen, it has seemed impossible to ascribe any other explanation. Since destructive volcanic disturbances have been reported from Japan near the time this phenomenon was seen, it has been thought best to make a special report aside from that which will be given in the monthly Meteorological Notes.—[Sgd.] H. A. FRISE, Observer.

ANNUAL MEETING ROYAL METEOROLOGICAL SOCIETY.¹

Mr. C. J. P. Cave, president, in the chair.

* * * The president presented to Mr. W. H. Dines the Symons gold medal for 1914, which the council had awarded him in recognition of his distinguished work in connection with meteorological science.

Mr. Cave, in his presidential address, dealt with the subject of upper-air research. He pointed out that research in the upper air may be [prosecuted] by means of a manned balloon with observer and instrument, or by self-registering instruments sent up in kite, captive balloon, or free balloon. Kites were first used for this purpose by Dr. Wilson of Glasgow, 1749; and also in Arctic expeditions in 1821 and 1836. The box kite and the use of steel piano wire instead of line enabled greater heights to be obtained, and both were adopted by the Blue Hill Observatory in 1895. [See the following historical note.—Ed.]

The use of kites was not taken up in England till 1902, when Mr. Dines flew them from a steamer. After referring to the use of balloons and the ascents made by Glaisher and others, the president said that danger to life in high ascents caused MM. Hermite and Besançon to use a registering balloon in 1893; a free balloon carried a recording instrument, the recovery of the instrument being dependent on the balloon being found after its descent; a height of 9 miles was reached in France, and 13 miles in Germany soon after. He next referred to various types of instruments used in this way, and described Mr. Dines's meteorograph, which is an extremely simple and light instrument. Rubber balloons are generally used, and as they ascend they tell us of the winds above the surface, a special theodolite being used for observing the balloons. The International Commission for Scientific Aeronautics directs the studies for upper-air research, and special days are arranged for international ascents of balloons and kites, stations in various parts of the world taking part in the work. The first great result of these researches has been the discovery that the atmosphere is divided into the troposphere, where the air is in constant movement, horizontal and vertical, and the stratosphere, where turbulent motion seems to cease. The stratosphere begins at about 7.5 miles in these latitudes. The method of investigation is new, but many other results are beginning to come to light, and it seems as though changes of weather do not begin at the surface of the earth, but are dependent upon movements taking place about 7.5 miles up.

EVOLUTION OF THE METEOROLOGICAL KITE.

Very few appreciate the precise sequence of items in the evolution of a great invention.

In 1890 (see Proceedings International Conference Aerial Navigation held at Chicago, Aug. 1-4, 1893, p. 315) William A. Eddy, of Bayonne, N. J., began his enthu-

siastic experiments "to evolve the best form of kites to be used in raising self-recording meteorological instruments to a great height," and fully demonstrated the unrealized possibilities of the kite. In August, 1892, his Malay kite penetrated a shower cloud. In July, 1894 (see American Meteorological Journal, vol. 11, p. 298), at the Editor's earnest suggestion he temporarily transferred his experimental kites to the Blue Hill Observatory, established and maintained by the enthusiastic meteorologist, A. Lawrence Rotch.

On July 13, 1893, Prof. M. W. Harrington wrote the article on pages 203-206 of the American Meteorological Journal, volume 10, expressing his belief that any hope of marked improvement must lie in scientific investigation of the upper atmosphere, which he calls "the free air," by means of kites and balloons. A few weeks later, namely, at Chicago on August 1, he communicated to the International Conference on Aerial Navigation (see p. 349 of the proceedings) his paper on systematic explorations of the upper air, following which (see p. 354, op. cit.) the conference unanimously voted "that Congress should in our judgment make necessary appropriation to have the experiments made as recommended by Prof. Harrington." (See also Monthly Weather Review, Washington, July, 1897, p. 313.) At this same conference Mr. Lawrence Hargrave, of Melbourne, gave an account of his box kites and Mr. William A. Eddy of his Malay kite. (Aeronautics, vol. 1, p. 82, and Monthly Weather Review, 1897, p. 311.) The stimulus thus given at this conference, whose origin was due to Mr. Octave Chanute and Prof. A. F. Zahm, marks the beginning of the official kite work in the Weather Bureau, although it is quite true that its importance had been urged and many experiments had been privately and personally carried out during previous years by numerous officials, e. g., Abbe (1871), Hazen (1890), McAdie (1884), Marvin (1891), Potter (1890), Sherman (1879), Waldo (1882). The abrupt and lamentable dismissal of Prof. Harrington, July 1, 1895, interrupted his plans of cooperation in this work and led to the following order of November 18, 1895, by which Prof. Moore placed all further investigations relative to kite, aeroplane and balloons in the hands of Prof. C. F. Marvin:

WASHINGTON, D. C., November 18, 1895.

Prof. MARVIN:

You are hereby directed to investigate the problem of constructing appliances for carrying meteorological instruments into the upper air. Authority will be given you for any reasonable expense necessary for construction of appliances used in experiments. It is hoped that you will give early and thorough attention to this matter. You may consult with Prof. Hazen, if you wish, but I am inclined to think that independent action will be better.

You will also please give your attention to the construction of necessary instruments, but this part of the work is not so important as the making of the aeroplane, or balloon.

Very respectfully,

WILLIS L. MOORE, Chief of Bureau.

The account of the work done at Blue Hill, published by A. L. Rotch, January 13, 1897, in the Proceedings American Academy of Arts and Sciences, volume 32, pages 245-251, gives interesting historical items generally gathered from the pages of the Monthly Weather Review. The enthusiasm and energy shown by Eddy, at Bayonne, and Rotch, Clayton, and Ferguson, at Blue Hill, is to be compared only with the steady progress made at Washington in the theory, improvement, and construction of every detail in kite work considered as a problem in economic engineering. While recognizing the innumerable experiments and suggestions that are on record since the first work by Alexander Wilson, in 1749, at Glasgow,

¹ From The Athenaeum, London, Jan. 24, 1914, p. 139.