

opposite the beautiful Franklin Square, when after some pleasant reminiscences of their old association the genial old professor remarked: "There is no question in my mind but that Professor Espy should be regarded as the father of the present Signal Service of the United States," his theory of storms having led the way to its establishment and present success," adding that the charts now used in the service were identical (with some slight modifications)² with those the old Storm King constructed for use in the Meteorological Bureau of the War Department when he was at its head. This interview occurred in 1875. General Myer, "Old Probabilities," as he was called, made a similar statement to the writer.

The mineral springs at Bedford, so fashionable a resort 50 years ago, are situated about one mile from the village, and were often visited by Professor Espy during the many years of his residence in Philadelphia, where he taught a classical school while investigating the phenomena of the forces of the atmosphere which led to his discovery of "The Theory of Storms."

An old friend of the professor, a fellow-scientist, who visited him often at his home on Chestnut street, described to the writer his method of pursuing his atmospheric calculations, which necessarily must be carried on out of doors. The fence inclosing the small yard was of smooth plank, painted white; the yard was filled with vessels of water and numerous thermometers for determining the "dew-point". The white fence, when the narrator saw it, was so covered with figures and calculations that not a spot remained for another sun or column.

In 1839 Mr. Espy visited England for the purpose of presenting his theory of storms before the British Association of Science. Sir John Herschel, with other eminent scientists, was present and received him with cordial greetings and warm appreciation. He spent several weeks most delightfully in many of the "stately homes" of that country, where he and his wife were agreeably entertained. In the autumn of the same year he visited Paris, where a committee had been appointed by the Academy of Science to receive him, presided over by the illustrious Arago, who was enthusiastic in his reception of the storm theory, as presented to them in several lectures by its discoverer. In his address of welcome, Arago remarked that "England had its Newton, France its Cuvier, and America its Espy." Students of nature are usually of serene and happy temperament, and Mr. Espy was no exception to the rule. He never seemed impatient or concerned at the slow recognition of his discoveries as means of practical use in commerce or other national needs. He would say, "I leave all this to the future, sure that its adaptations to the uses of life must one day be seen and acknowledged." He left no children, and but few are now living of his near relatives, but those few remember with reverence the broad charity and earnest purpose of the "Storm King."

LECTURES ON METEOROLOGY.

Referring to a gentleman who desires material to enable him to give a lecture on meteorology, one of our best section directors quotes the State School Commissioner to the effect that the teachers and children of the State should be protected from lectures or instruction of the character contemplated by the proposed lecturer.

This remark may apply possibly to many others. Errors are disseminated by public lecturers quite as easily as by books or any other method. It is impossible but that errors should exist and be propagated, like noxious weeds, but the wiser commissioners of education, school commissioners, or other authorities do the best they can to secure the best available teachers and lecturers. The great demand for such instruction in meteorology will be realized when we consider that in one single State alone there will be held 50 teachers' institutes during August, 1906, and other States will hold as many, or even more. Therefore incomplete and inaccurate teaching is inevitable. The Weather Bureau can not supply the intense demand for lecturers during the summer season, although the Chief will do the very best he can. Our best school books probably contain errors relating to meteorology, but they do not attempt to answer the innumerable questions, sometimes very foolish and unnecessary, that are asked by the teachers and the scholars whenever they come in personal contact with an intelligent meteorologist.

We hope that some of our best men may have time to prepare lectures to be sent in typewritten copies, or newspaper print, to many educational centers, where they may be delivered

²There are many others who have equal claims to be called "fathers" of the beneficent Weather Bureau.—C. A.

³These modifications are very important and fundamental.—C. A.

orally, precisely as has been done for many years past with great success in the State of New York.

In other cases some of our best men might well take two months' furlough in the summer and devote themselves wholly to the work of the teachers' institutes. They would probably reach several hundred persons every day of the week, and disseminate valuable information among the teachers, which would be retailed to the tens of thousands of scholars.

HAILSTORM IN THE BAHAMAS.

On page 260 of the MONTHLY WEATHER REVIEW for June, 1905, we published some account of a hailstorm on April 18 in the island of Spanish Wells, about fifty miles west of Nassau, an event that was said to have been very local and entirely phenomenal. The following note relates to a similar hailstorm, 60 miles east of Nassau. From these two reports it is reasonable to infer that local hailstorms are no rarer in that region than in many other parts of the world. Such storms are always local, and there is but small chance that they will frequently visit any locality, such as the small individual islands of the sparsely inhabited Bahamas. Nothing but a faithful record for many years would justify any attempt at determining the relative frequency of these local hailstorms. Our own impression is that a given square mile of territory anywhere in the United States east of the one hundredth meridian is about as liable to experience a severe hailstorm as it is to experience a disastrous tornado, and that is to say about once in a thousand years.

NOTE BY P. H. BURNS, SUPERINTENDENT BAHAMAS CABLE.

On Sunday morning, February 14, 1906, between midnight and one o'clock a. m. a severe hailstorm visited Governours Harbour, Eleuthera, about sixty miles east of Nassau. A report from the Resident Justice of that settlement states that "it rained very hard for a half hour, with moderate wind from east. The wind then freshened and veered to south-east when hail began falling very heavy and lasted about fifteen minutes. The wind then fell some and shifted to the southwest with renewed rain. Next morning the effects of the hail could be seen on buildings and trees and it was on the ground in some places about six inches. A number of small birds were killed. The hailstorm did not extend for more than a quarter of a mile around the town. Nearby cultivated areas were slightly damaged. Rainfall 1.75 inches."

A FAKE RAIN MAKER.

Mr. Otto J. Klotz, the Chief Astronomer of the Dominion of Canada, and a very active friend of honest meteorology, kindly sends the following extract from The News, of Toronto, March 3, 1906. We know of no better way to protect the public than to expose the pernicious activity of the fake rain makers, the hail preventers, and the planetary forecasters:

Ottawa, March 3.—In the appropriation ordinance passed last autumn by the Yukon Council appears a vote of \$5000 for the purpose of "encouraging meteorological experiments on the Dome"—the peak which dominates the vicinity of Dawson—"in the summer of 1906." This innocent item covers one of the quaintest pieces of administration ever perpetrated by a Canadian legislative body.

The rainfall is an important consideration in the Yukon, as the miners need water for their operations, and a wet summer is as advantageous as a dry one is the reverse. So far as observations extending over a very few years can serve as an indication, wet and dry summers roughly alternate. The summer of 1905 was marked by a drought, so that the balance of probabilities is in favor of a rainy summer this year.

Southern California for some time has been the home of a rain maker, one Hatfield, whose method of operation seems to be the liberation of certain chemicals, which are supposed to induce showers. Mr. Hatfield has advertised his methods and his alleged successes with some enterprise, and the administration of the Yukon has become an admirer of his. The "meteorological experiments" are to be conducted by him, and the \$5000 is for him.

STANDS TO WIN ANYWAY.

Private persons have subscribed \$5000 and the Yukon Council supplies another \$5000. Mr. Hatfield is to spend the summer in the country and his expenses, estimated at \$2000, are to be defrayed in any event. If it rains, he is to get the other \$8000. Thus Mr. Hatfield occupies an advantageous position in the bargain. He will get \$2000 expense money in any event, and he will get \$8000 more, (1) if he "makes" the rain, or (2) if the rain happens to come independently of his liberation of chemicals.