

further states that he reads ASTRONOMY AND METEOROLOGY with much interest, and hopes that it will prove a financial success.

Since last issue I have purchased the Bowles Newtonian reflecting telescope. This instrument was constructed by Mr. Bowles in 1884. The mirror is of silvered glass, $8\frac{1}{4}$ inches clear aperture, and the focal length of the tube is six feet. The mirror and diagonal are from the well-known optician, J. A. Brashear, of Alleghany, Pa., maker of the great Lick spectroscope, the Warner Observatory spectroscope, the concave grating spectroscopes of Vienna and Paris Universities, the 20-inch mirror of the Alleghany Observatory, and many other fine optical instruments. The eye-pieces are from Dolland, of London, with powers of 175, 250 and 360. My purchase is mounted on a revolving stand, with open lattice work tube and brass finder, has screw focussing adjustment, and is altogether a very serviceable instrument. Knowing its capabilities—for I tested it with its former owner several times, and found it do better work than the college six-inch refractor here—I have no hesitation in anticipating that it will do some good work. Tests on the moon, *Polaris*, some few other double stars, the great cluster in *Perseus*, etc., have already delighted me, albeit that the mirror and diagonal badly need re-silvering. But Mr. Brashear says that his mirrors may often look worthless, and still be capable of doing good work. This is certainly true in the present case.

It is my intention during the winter and spring to have certain evenings for observation with associates and their friends. As for instance, "a night with the Moon"; "a night with Saturn"; "double Stars and Nebulae"; and, towards the close of the season, "a night with Jupiter"; when actual observation may be supplemented by conversation, each member telling what he knows of what is observed, alongside the eye-piece. These evenings would not, of course, interfere with the regular monthly meetings of the Association.

Associate Logan writes me a long, interesting letter from Hawaii. Taking an active part in the recent bloodless revolution there, his account of the shameful doings of court and court-officials go a long way to prove that a revolution was absolutely necessary. What is of perhaps more interest to us he states that the editor of *O Luso Hawaiiano*, a Portuguese paper there, has been predicting weather from the forecasts in *Smith's Planetary Almanac*, and the forecasts there prove remarkably correct. Now, is not this a grand proof that the science of planetary meteorology has its foundations laid in truth? If not, why should the anticipated conditions follow at such widely separated spots as Canada and Hawaii?

Meteorology.

August, 1887, at Montreal, gave a mean temp. of $65^{\circ} 94'$, as compared with $67^{\circ} 49'$ the mean for 13 years. Max. temp. $87^{\circ} 9'$ on 4th; min. $49^{\circ} 6'$ on 25, a range of $38^{\circ} 3'$. Rain fell on 9 days to the extent of 1.72 inches, as compared with a mean of 2.44 inches. Highest bar. reading 30.342 on 31, lowest 29.653 on 18.

Mr. Birt reports August at Utica, N.Y., as giving a mean temp of $61^{\circ} 99'$; max. 93° , min. 28° . Rain seems to have fallen on only 4 days.

Mr. Horne reports from Melvin, N.H., that August entered hot, falling to 46° by the 14th. Rain storms along the middle of the month, which ended showery.

Mr. Brandenburg reports July in Minnesota to have given an excess of temp. Tornadoes on 25, 26 and 29 did some damage near Moorhead. Average temp. for the State $72^{\circ} 4'$ or $0^{\circ} 2'$ and $1^{\circ} 5'$ above that of the corresponding month of 1886 and 1885. Highest temp. 101° on 15, lowest 37° on 23.

His report for August shows the month to have been characterized by a temp. below the normal, and a deficiency of precipitation. The first general frosts occurred on the mornings of the 24-25. Tender vegetables were nipped. The mean temp. was $65^{\circ} 3'$, or $2^{\circ} 2'$ above the corresponding month of 1885, and $4^{\circ} 7'$ below that of 1886. The average precipitation was 3.04 inches, or about half an inch above the corresponding months of 1885 and 1886.

July in Canada was remarkable for unusually dry, warm weather from the lakes eastward. The average temp. was above the normal in Ontario, Quebec, New Brunswick, Nova Scotia and Manitoba. In British Columbia and the Gulf of St. Lawrence it was slightly below. In many parts the drought ruined the crops, wells ran dry and the trees resembled October instead of Mid-summer. Max. temp. 102° at Chatham, Ont., on 17; min. 31° at Kilnap, Assin., on 12.

August in New Jersey gave a deficiency of heat of $1^{\circ} 26'$. The max. was 94° at Salem on 6; min. 42° at Hanover on 27. Rainfall below the average.

Mr. Barnard reports August in Vermont a disagreeable month. Haying did not begin there till August, and many farmers did not finish before September.

Mr. Wood, from Wisconsin, reports August with a max. temp. of 94° at Shawano on 1, and a min. of 56° on 22. Comparative mean temp. and rainfall for four years as follows, except for 1884, when the rainfall was probably over 5 inches:—1887, $76^{\circ} 10'$, rainfall $3\frac{1}{2}$ in.;

1886, $79^{\circ} 17'$, rainfall $4\frac{1}{2}$ in.; 1885, $74^{\circ} 22'$, rainfall $5\frac{1}{2}$ in., and 1884, $77^{\circ} 14'$.

Mr. Downing reports from Concord, N.H., for August: Mean temp. $66^{\circ} 2'$; max. $85^{\circ} 5'$ on 1; min. 46° on 28. Light frost on latter date.

Mr. Parker reports from New Brunswick my July and August forecasts fully verified. Uncommonly dry and extremely wet weather in sections of that province.

St. Johns, Nfld., and St. Pierre Miquelon and adjacent coasts experienced a furious gale on August 26th. The hurricane came from the West Indies, where it did great damage on the 24th.

Manitoba now estimates her surplus crop of wheat for export as about 6,000-000 bushels.

Parts of West Virginia suffered severely from drought during August.

Immense bush fires have been ravaging extensive districts in Ontario during September. The forecast, it will be remembered, called for such.

The old idea that rains follow railway lines has been heard from again, this time it is in Mexico. Serious washouts have occurred along the Mexican Central Railway in a section where the country was very dry, in advance of the building of the road. The idea is, of course, that the rails attract electricity, which brings the rain with it.

The water in the St. Lawrence, Ottawa and tributaries has been very low this September.

Wisconsin is said to have got the worst of the drought this year. About 75,000 acres, it is stated, were left about as barren as the Desert of Sahara.

Shocks of earthquake were felt at Savona, Italy, on Sept. 4. But little damage was done.

Newfoundland was the scene of another great gale on Sept. 17. Bonavista Bay after the storm presented a dreadful scene, wreckage, timber, masts and other debris being strewn indiscriminately about the place. Twenty fishing vessels were driven ashore, and several others sunk at their moorings.

A very large meteor was seen at Halifax and adjacent parts of Nova Scotia on the night of Sept. 15. It is described as bursting into fragments ere it reached the ground, and to have left a long luminous train behind.

The "equinoctial" this year started from Western Cuba on Sept. 16 and moved forward, reaching the Central and Western gulf coast on the 19th. The low pressure out seaward caused a strong wind to blow from the North-West and West over the St. Lawrence and Lake region on the 20-21, which was followed by heavy showers over the St. Lawrence valley.