

CORRECT OUT IN MINNESOTA.

[30.] "Stormy, unsettled, high winds and gales—cool with rains," so says your forecast for May 29 31. It was correct as far as this place is concerned. On the 29th we had two hail, rain and thunder showers, with strong wind. On the 30th it was cold, rainy and windy, so cool that I had to kindle a fire in my sitting room. Enclosed find \$1.00 for another copy of ASTRONOMY AND METEOROLOGY. I will get more subscribers if I can, for I am anxious to have the paper succeed.
Hamlin, Minn. C. B. M.

WHY IT IS WARMEST IN THE NORTHERN HEMISPHERE WHEN SOL IS AT APOGEE.

[31.] If all heat is received from the Sun, why doesn't it become colder as we recede? The nearer we approach the Sun the colder it becomes. Why?
Utica, N.Y. BURT.

Ans.—What you say is only true of the Northern Hemisphere. In the Southern, the weather grows hotter as the earth approaches perihelion, which it arrives at about Jan. 1 each year. When the Earth is at Aphelion (farthest from the Sun) the summer of the Northern Hemisphere occurs, simply because the Northern Hemisphere at that time (July 1) is turned towards the Sun.

NOT TOO OLD TO APPRECIATE THE PAPER.

[32.] Although nearly seventy years of age, I am not too old to appreciate and feel greatly interested in your work. Your new and interesting paper I like very much and enclose \$3.00, with subscribers' names. I will do all I can to help ASTRONOMY AND METEOROLOGY along.
Baden, Mo. O. F. D.

JUST SPLENDID.

[33.] ASTRONOMY AND METEOROLOGY is splendid and should have a large circulation among all people of observation with a weather eye towards the sciences pertaining to the rolling orbs around us. One almost feels envious in reading your cozy times with Myrina up on Mars. It looks as though it might tend to a celestial wedding in the spirit world and I send congratulations in advance.
W.

STANDARD WORKS ON ASTRONOMY, METEOROLOGY AND ENTOMOLOGY.

[34.] Would you kindly suggest what you consider (1) the best works on the sciences of Astronomy and Meteorology. (2) As you are something of an Entomologist, perhaps you could suggest works in that line also, for a public library.
Minnesota. LIBRARIAN.

Ans.—(1) Loomis' "History of Astronomy," said to be the best work of the kind in the language; Arago's "Popular Astronomy" (English version); Narrien's "Origin and Progress of Astronomy"; Guillemin's "The Heavens";

Herschel's "Outlines of Astronomy"; Gillet and Rolfe's "The Heavens Above"; all Flammarion's translated works and all of Proctor's Astronomical books. Special subjects: Nasmith and Carpenter's "Moon," Pingre's "Cometography," (translated), Proctor's "Saturn," and, as a guide to the amateur observer, Webb's "Celestial Objects for Common Telescopes." I may add that every person interested in this science, no matter how many works he has read, finds it absolutely necessary to keep up with new discoveries and discussions, by perusing the current literature published by such bodies as the Astronomical sections of the B.A.A.S., A.A.A.S., Brit. Astro. Soc., Trans. of the Royal Societies of London, Edinburgh and Dublin, indeed he may find something he did not know before in the modest little ASTRONOMY AND METEOROLOGY, with its verbatim accounts of the proceedings of the Astro-Meteorological Association. For Physical Astronomy Laplace's "Mecanique Celeste," (translated by Bowditch), For History, Whewell's "History of the Inductive Sciences." Concerning Meteorology, the list is smaller. Some of the best works are: Ferrol "On the motions of Fluids and Solids, relative to the Earth's surface," (New York, 1860). Espy's "Philosophy of Storms" and "Fourth Report on Meteorology," (Washington, 1857). Drew's "Meteorology"; Herschel's "Meteorology"; Dove "On the Distribution of Heat on the Surface of the Globe"—very interesting, with charts of the world, the temperature for each month, year, etc.; Scott's "Elementary Meteorology"; Finlay's "Tornadoes" and the "U. S. Army Met. Register" for 1855, (if obtainable,) which gives elaborate charts of temperature and rainfall. (2) Mr. Caulfield, Secretary of the Entomological Society here, suggests the following: "Packard's Guide to the Study of Insects," also, (same author), "Half Hours with Insects"; Harris' "Insects Injurious to Vegetation"; Woods' "Insects Abroad"; Edwardes' "Butterflies of North America" (now being published in parts); Scudder's "Butterflies of New England" (in preparation) and Saunders' "Fruit Insects." Popular journals are: "Entomologica Americana," (Brooklyn, N. Y.) and "Canadian Entomologist," (London, Ontario).

Planetary Influence.

Some imagine that the word "Astro-Meteorology" is simply an abbreviation of "Astronomy" and "Meteorology." Nothing of the kind. Astro-Meteorology is a distinct science. To become an expert in it, I grant, the student needs a thorough knowledge of the two sciences in question, in fact, one cannot be a good

Astro-Meteorologist unless one is also an Astronomer and a Meteorologist.

Ogilvie and Worcester in their dictionaries show this, the word being derived from "astron," a star, "meteoros," lofty, and "logos," a discourse; actually, "The art of foretelling the weather from the aspects (and positions) of the moon and stars, (planets)." Astro-Meteorology is, therefore, an endeavor to trace the connection between weather changes, storms, earthquakes and seasons of hot, cool and warm temperatures with astronomical phenomena. The endeavor is usually successful.

Truly, there can be no loftier study than this, with its grand possibilities and its many bearings on civilization. In fact it is too lofty for the greater part of mankind, who cannot trace up the effect to the cause, and are, in consequence, content to record the cause alone, hoping that in some future time enough records will have been piled away on their shelves to admit of a scientific forecast being made from such musty hoards. That the keeping of weather records should not be despised, I admit, but I cannot help but remark that by so doing alone no man will be able to step boldly forth and say, "such and such atmospheric changes or disturbances will take place on such a day." To do this Astro-Meteorology has to be resorted to.

Let me ask here, what has become of the numerous so-called predictive weather sciences that have arisen, apart from Astro-Meteorology? What has become of them? Why their names must have been written on the ever varying clouds which their inventors claimed to have learned to control. But Astro-Meteorology, on the contrary, has flourished—yes, flourished from the remotest ages; in fact we cannot go back to the days when it had not its students. Watching with the Chaldeans and Egyptians, observing with the most learned of the Greeks, making its home with some of the mightiest sages and scientists of later times, its students still study and record, frequently making forecasts at which a world marvels.

"Watching for coincidences," is admitted, even by our opponents, to be admissible in building up a scientific superstructure. We believe that we already are in possession of these coincidences, at least in sufficient number to admit of an Astro-Meteorologist, who has thoroughly studied his subject, making such reliable forecasts as the London Times in 1878 declared—could such knowledge be obtained—"would confer an incalculable benefit upon the people." The Astro-Meteorologist aims to confer that benefit, but in so doing, like many another public benefactor, derision and scoffing are meted out to him in no measured quantity by the very persons he hopes to benefit.