

On the 1st, at 4 p. m., 3rd, at 3 and 5 p. m., 5th, at 2 p. m., 21st, at 2 p. m., 22nd, at 2 p. m., 23rd, at 2 p. m., 24th, at 2 and 4 p. m., 25th, at 5 p. m., 27th, at 4 p. m., 28th, at 2 p. m., 29th, at 2 and 4 p. m., 30th, at 2 p. m., and 31st, at 2 p. m., observations were made, but no spots seen. Mr. W. Dawson, of Spiceland, Ind., reports having observed the sun every day, with the following results: No spots on the 1st, 4th, 5th, 6th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 27th, 28th, 30th, 31st. On the 2nd, two groups of one and four spots; 7th, one group, four spots; 8th, one group, twelve spots, and prominent faculae near east point; 9th, one group, eleven spots, one spot near the faculae of yesterday; 10th, one group, nine spots; 11th, one group, nine spots; 12th, one group, four spots; and on the 13th, the group had dwindled to one little spot. Mr. David Trowbridge, Waterburg, N. Y., examined the sun on 3rd, 5th, 6th, saw no spots; 8th, saw group of two, one large, one small, near eastern margin of disc, brought on by solar rotation; 10th, one spot, faint; 11th, 12th, one spot, faint; 14th, 15th, 17th to 26th, 28th to 31st, none. Mr. H. D. Govey, North Lewisburg, Ohio, observed no spots during month. Prof. G. Hinrichs, Iowa City, Iowa, reports sun's disc "examined on twelve days without seeing a spot."

NOTES AND EXTRACTS.

Mr. Joao Capello writes to *Nature* as follows: "In *Nature* of March 6th, p. 420, in regard to an appreciation of the meteorological observations of the Hydrographic Office at Pola, appears the following: 'The amount of this third maximum is very small, and the evidence yet adduced is not sufficient to determine whether it is a real increase of atmospheric pressure or merely an apparent increase due to undetected instrumental errors.' We remarked this secondary maximum of the barometer in an investigation of the diurnal variations of pressure at Lisbon, before knowing that Mr. Rikatscheff had written a memoir on this subject, and we can affirm that the said maximum is not due to instrumental errors; the examination which we made was of a series of 12 years of hourly observations, taken from a barograph, (photographic system,) and we proved as follows: 1st, Not one of the 12 curves of atmospheric pressure, corresponding to the 12 months of December or the 12 months of January, has failed to show the said secondary maximum between the 13th and 15th hours. 2nd, The values of the average errors in those hours, (13th, 14th, 15th,) are smaller than the probable errors of other hours of the day. 3rd, In grouping the hourly pressures of clear and calm days of January and of December, during the whole series of 12 years, the maximum in question, stands forth more regularly, and is much more developed than in the curves of the mean pressures of the same months. It seems to me that the existence of this secondary maximum, very difficult to explain, and which renders more obscure the explanation of the double diurnal oscillation of the barometer, is demonstrated."

[From *Comptes Rendus*.]

The following extract is taken from a letter of Mr. F. A. Forel: "A cyclonic-hurricane passed over Switzerland during the evening of February 20th, 1879; I find in the study of the phenomena an indirect proof of a gyratory movement of the atmosphere which seems to me very convincing. After a very marked calm which had during the day, (February 20th,) succeeded the southwest wind blowing in our valley since February 16th, suddenly a gale of exceptional violence sprung up. Over a track 12 to 20 kilometres (7.4 to 12.4 miles) wide, the hurricane overturned or carried away tiles and window panes, chimneys and roofs of houses, isolated trees or entire groves, and shipwrecked upon Lake Lemman some fishing boats; the zone of devastation passed quite exactly through Geneva, Lausanne, Fribourg and Berne. Upon two sides of this zone a comparative calm prevailed; squalls from the southwest on the north side of the storm, and *foehn* (southeast wind) in the valley of the Rhone from Martigny to Vevey to the south of the path of the cyclone. The sudden commencement of gale allowed a quite exact measurement of the velocity of its translation. Here are the approximate figures which I have been able to gather:

STATION.	Time of commencement.		Distance from Geneva.		Duration of translation in minutes.	Velocity of translation.	
	hour.	min.	Kilometres.	Miles.		Metres per second.	Miles per hour.
Geneva	5	45
Morges	6	35	43	26.7	50	14	31.3
Lausanne	6	45	51	31.7	50	14	31.3
Fribourg	8	10	102	63.4	145	12	26.8
Berne	8	50	129	80.2	185	12	26.8

"We have on the other hand a very exact report of the average velocity of the wind at a given point within the area of the phenomena. The anemometer of the Berne Observatory, of which Prof. A. Förster has very obligingly sent me notes, indicated as the wind's velocity:

INTERVAL FROM—		Kilometres per hour.	Metres per second.	Miles per hour.
5 to 6 P. M.		0	0	0
6 7 P. M.		2.8	0.8	0
7 8 P. M.		4.2	1.4	1.7
8 9 P. M.		72.0	20.0	44.7
9 10 P. M.		79.2	22.0	49.2
10 11 P. M.		83.5	23.2	51.9
11 12 P. M.		80.7	22.4	50.1

"Thus, during the storm, the average velocity of the wind at the Berne Observatory was from 20 to 23 metres per second, (44.7 to 51.5 miles per hour,) while the velocity of translation of the gale itself was only from 12 to 14 metres per second, (26.8 to 31.3 miles per hour.) I see in the comparison of these figures evident proof of a relative movement in the phenomena itself, of a partial displacement of air in the middle of the great current of air which moved towards the north-east, and this intense movement could be only a turning movement. The storm of February 20th was then a cyclone, and the devastated zone was the *dangerous side*."

[Note of Mr. E. Nouel, from *Comptes Rendus*.]

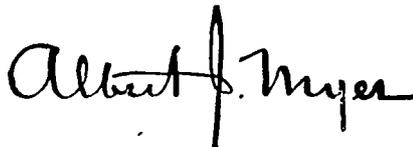
"In a note on the theory of hour frost and *verglas*, (frozen rain,) printed in Vol. XI, (1863,) of the *Annuaire de la Société Météorologique de France*, page 26, I showed that the great *verglas* are not due, as is

believed, to a rain *above zero* [centigrade], partly freezing by contact with objects whose temperature is below zero, but that they arise from a rain several degrees *below zero* [C.], in liquid state, falling through air *below zero* [C.], and congeal upon the surface of objects, in a continuous manner, through the effect of the surrounding temperature.

"This theory has been twice strikingly confirmed this winter, at Vendome. 1st, During the night of January 7th and 8th, a storm accompanied by a rain of 23.5 millimetres (0.92 inches) of frozen water, and by a temperature varying between 0° and -1° centigrade, (32° and $30^{\circ}.2$ Fahrenheit,) caused a *verglas* of about 15 millimeters, (0.59 inches) in thickness, which greatly damaged the trees. 2nd, The 22nd and 23rd of January following, a rain which lasted 30 hours, scattered over a period of 40 hours, produced a coating of transparent ice which I estimated at 25 millimeters, (0.99 inch,) and the temperature of the air was on an average at -2° centigrade, ($28^{\circ}.4$ Fahrenheit,) during all this time.

"Several observers have addressed to the Academy, (sessions of day January 27th and February 3rd,) notes on the great *verglas* of January 22nd and 23rd, Messrs. Nasse and Godefroy have joined thereto, (*Comptes Rendus* p. 192 and 244,) a theory as to its formation. This theory is only a reproduction of that which I had conceived on occasion of a like phenomena, December 25th, 1860, and which I published in the *Annuaire de la Société Météorologique* in 1863. It appears that it has remained unknown to physicists, whose attention has been awakened only this year by the exaggeration itself of the phenomena which has assumed proportions unheard of until now."

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