his inability to give a diagnosis of the Picariæ, that is in the logical sense, but claims that the group as selected by him possess "certain common features not found among the Passeres." In the last chapter in this volume, he treats of the Jacamars to the Toucans.

Cours Eléméntaire d'Électricité. By M. B. Brunhes. Pp. 265. (Paris: Gauthier-Villars et Fils, 1895.)

THE experimental laws and general principles belonging to the study of technical electricity are set forth in this book in an elementary, but strictly scientific, manner. The book reproduces the author's first-year course of theoretical electricity at the Institut industriel du Nord de la France, and its contents furnish just the kind of foundation needed by students of electrical engineering. In several respects, the treatment differs from that generally followed in text-books; hydrodynamic analogues are entirely omitted, and the word potential is not employed, voltage, or E.M.F. between two points, being used to express potential difference.

Off the Mill: Some Occasional Papers. By G. F. Browne, B.D., D.C.L., Bishop of Stepney. Pp. 271. (London: Smith, Elder, and Co., 1895.)

ALPINE climbers, and others who find delight in mountain-peaks and glaciers, may like to read the papers on Alpine subjects reprinted in this volume. The papers originally appeared thirty years ago, and they offer to the present generation of mountaineers an interesting picture of the way in which climbs were then made. The ice-caves in the neighbourhood of Annecy form the subject of one of the papers appealing to scientific readers.

LETTERS TO THE EDITOR.

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A Cyclonic Indraught at the Top of an Anticyclone.

BETWEEN June 7 and 12 an anticyclone, with maximum pressure of 30·20 to 30·30 inches, passed slowly from the north-west across southern New England. The isobars formed well-defined ovals, with their longer axes running from south-west to north-east. It was difficult to locate the centre of the anticyclone because the isobars were broken on the side toward the ocean; but, by drawing a line through the stations showing the maximum pressure, the crest or ridge of the anticyclone could be easily located up to the 11th, after which it passed off the coast and its position became somewhat uncertain, although the pressure continued above normal over southern New England until the night of the 12th.

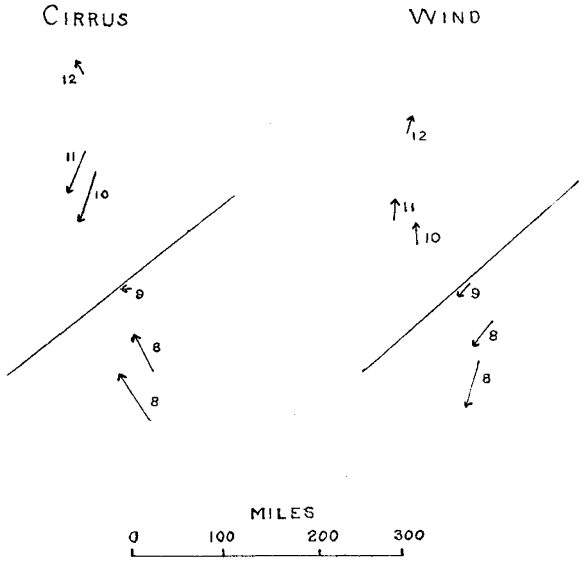
The interest attaching to the anticyclone lies in the fact that cirrus observations obtained on both sides of the line of maximum pressure indicate an indraught at the top of the anticyclone of the same nature as that observed at the bottom of cyclones.

The anticyclone passed nearly centrally over the Blue Hill Meteorological Observatory. As it approached from the north-west, the cirrus clouds on the 8th were observed moving from the south-south-east. As the line of maximum pressure passed over the observatory on the 9th, the cirrus movement shifted to the north-east, from which direction it was observed on the 10th and 11th. This change corresponds almost exactly with what would be observed in the surface wind should a trough of low pressure pass over Blue Hill from the same direction. On the 12th the cirrus shifted to south, and on the 13th to the west, with the approach of a cyclone from that direction.

The direction of cirrus movement and the mean direction of the wind is recorded at the observatory in degrees of azimuth beginning with the south point. The first is measured with a nephoscope, and the second recorded by a Draper anemoscope. The following table gives the cirrus and corresponding wind observations between the 8th and 10th, no cirrus observations being obtained on the 7th. The velocities of the cirrus were obtained by multiplying the observed relative velocities by a factor to reduce to absolute velocities. This factor was determined from direct measurements of cloud heights and velocities carried on for some time at this observatory. The last column in the table contains the directions in degrees of azimuth of the line of maximum pressure in the anticyclone, taken from the maps of the United States Weather Bureau.

	Cirrus.		Wind.		
	Dir. from.	Veloc. Miles.	Dir. from.	Veloc. Miles.	Line of max. press.
	°		°		°
June 8, 8 a.m.	329	48	203	29	50
,, 8, 8 p.m.	320	34	225	23	45
,, 9, 8 a.m.	243	6	233	18	47
,, 10, 5 p.m.	213	34	13	12	60
,, 11, 2 p.m.	245	34	21	14	70
,, 12, 8 a.m.	340 ?	16 ?	47	13	?
,, 12, 5 p.m.	341	18	8	22	?

The changes in the direction of the cirrus and of the surface wind, as related to the line of maximum pressure, is shown graphically in the accompanying diagram. The line of maximum



pressure is indicated in each case by the long slanting line. The arrows fly with the cirrus and with the wind, and the length of the arrows indicate the velocity, though on a different scale in the two cases. The small figures near the arrows give the dates of observation.

Repeated observations of this kind, here and elsewhere, ought to throw some light on the causes of cyclones and anticyclones. If an indraught prevails at the top of the anticyclone of the same nature as the indraught at the earth's surface in a cyclone, it seems difficult to avoid the conclusion that there is an area of low pressure in the upper air above anticyclones, notwithstanding the fact that studies of mountain observations by Hann and others lead to an opposite conclusion. In the present case the inward gradient above appears not to have extended entirely to the outer limit of the anticyclone as indicated by the observations on the 12th.

Direct observations of the anticyclonic inflow must, however, be rare: first, because of the infrequency of cirrus in the proper positions, and the general absence of exact methods of measuring the slow motions observed; second, because there is usually a strong eastward drift in the upper air, which greatly interferes with the anticyclonic circulation, and generally overrides it, so that it only becomes strongly marked under stagnant conditions of the general atmosphere; third, the upper air isobars are usually distorted by strong contrasts of temperature in the area of the anticyclone. But notwithstanding these drawbacks, I am confident that with the increasing attention given to cloud observations, cases like the present will be frequently