12. *A Few Feet of Till.*—This till generally occurs as a thin deposit three to ten feet in thickness, but occasionally seems to be thickened up in the form of drumlin-like deposits amounting to as much as fifty feet. It is generally more gravelly than the Montauk type of till, and the oxidation does not often extend over three to five feet from its surface. This till can be seen resting on clays and gravels throughout this part of New England, but the best section is probably in the vicinity of Augusta. This till is believed to be the true Wisconsin till of New England.

13. *Retreatal Deposits of Sand, Gravel and Local Clays.*—These occur over wide areas in Massachusetts, New Hampshire and southern Maine. They were formed in part in glacial lakes and in part as outwash deposits in the sea or above water level.

14. *Deposits of Local Glaciers.*—In several localities in Maine: (*a*) In the territory directly east and southeast of Mt. Katahdin in northern Penobscot County, (*b*) in the mountainous region between Bangor and Ellsworth in Hancock County, and (*c*) in southern Piscataquis County, there is considerable evidence from direction of striæ, amount of oxidation, position of moraines, etc., indicating probable local glaciations somewhat later than the Wisconsin ice advance.

In closing this abstract the writer wishes to acknowledge his indebtedness to Mr. G. C. Matson, who assisted him in the underground water investigations and obtained many data helping towards a solution of Pleistocene problems.

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CURRENT NOTES ON METEOROLOGY.

THE FIRE-SHIP OF BAY CHALEUR.

IN his 'Notes on the Natural History and Physiography of New Brunswick' (*Bull. Nat. Hist. Soc. New Brunswick,* xxiv, Vol. V., 1905) Professor W. F. Ganong has a short paper, 'On the Fact Basis of the Fire (or Phantom) Ship of Bay Chaleur.' After an examination of all the evidence it appears to the author plain (1) that a physical light is frequently seen over the waters of Bay Chaleur and its vicinity; (2) that it occurs at all seasons, or at least in winter and summer; (3) that it usually precedes a storm; (4) "that its usual form is roughly hemispherical with the flat side to the water, and that at times it simply glows without much change of form, but that at other times it rises into slender moving columns, giving rise to an appearance capable of interpretation as the flaming rigging of a ship, its vibrating and dancing movements increasing the illusion." This is doubtless a manifestation of *St. Elmo's Fire,* but the compiler of these notes is not aware of any reports of similar phenomena, of such frequency in one locality, and of such considerable development. Professor Ganong cites the case of some lights reported around Tremadoc Bay in Wales, but notes that they in all probability had only a subjective basis. Lights of unexplained origin, the author notes, were reported as common off the Welsh coast two hundred years ago, and mention is made of St. Elmo's Fire observed at Anticosti. The phenomenon described by Professor Ganong is an interesting one, well worthy of careful study.

MONTHLY WEATHER REVIEW.

The Monthly Weather Review (No. 5, 1906) contains the following papers of general interest: 'Present-Day Climates in their Time Relation,' by F. M. Ball, of the University of Minnesota, a brief review of some of the more important facts regarding climatic changes, with the emphasis on geological changes. 'Severe Hailstorm in the Gulf of Mexico,' reported by R. G. Bindley, officer of the S. S. *Jamaican.* This storm occurred on March 18 last; the hail was so heavy that the ship was stopped and the officer of the watch and the helmsman were compelled to seek shelter. The first officer received a severe bruise caused by a hailstone striking the back of his neck, and the helmsman received a scalp wound. The stones dented the binnacles and chipped paint off rails and other painted surfaces. 'Tornado in Australia,' an account based on notes by H. A. Hunt, government meteorologist of New South Wales. This tornado was

a mild form of the American phenomenon of the same name. It occurred at North Sydney, March 27 last, in the region of northeast cyclonic winds, and moved southeast. This is the region which corresponds to the usual part of a cyclonic area in which our tornadoes occur.

BÖRNSTEIN'S 'LEITFADEN DER WETTERKUNDE.'

ONE of the most useful text-books of recent years is Börnstein's 'Leitfaden der Wetterkunde,' the first edition of which was published in 1901. This excellent little volume has now come to a second edition (Berlin, 1906), and has been brought thoroughly up to date. It in no way trespasses on the ground covered by any other of the newer text-books, and is unique in presenting an extraordinary richness of material, in a clear, compact form, with an admirable list of references to publications where further details may be sought. In the new edition special attention is paid to the temperature conditions and movements of the upper air, and to other subjects upon which recent studies have thrown much light. We note an interesting view (Fig. 14) of the upper surface of a sea of clouds, in which the course of underlying rivers is indicated by breaks; the inclusion of Berson's excellent classification of the different atmospheric strata in relation to vertical temperature gradients (p. 35); and the beautiful colored cloud views, Pls. V.–XV.

THE CYCLONIC THEORY.

W. H. DINES, who has been active in the prosecution of kite meteorology, says (*Nature*, 1906, 35–36) that the results of some two hundred kite ascents which he has carried out in England and Scotland, with an average height of about one mile, seem to give no evidence either for or against the convectional or 'driven' theory of cyclones. Dines believes that an error has been made in working out the results of free-air observations in cyclones and anticyclones. In a gas in equilibrium, he says, under a conservative system of forces, the isothermal and isobaric surfaces must be identical. The temperatures in cyclones and anticyclones should, therefore, not be compared at the same height, but on the same isobaric surfaces. In temperate latitudes these surfaces may differ from surfaces of equal height above sea level by a thousand or more feet.

'SOME FACTS ABOUT THE WEATHER.'

UNDER the above title, Mr. William Marriott, assistant secretary of the Royal Meteorological Society (London), has published a little handbook of thirty-two octavo pages, at the price of sixpence (London, Stanford, 1906). The text covers about the ground of a 'popular' lecture on meteorology, but is especially adapted for use in the British Isles.

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OUR constant growth in numbers and our recent increase in endowment ought to enable us to do better work in the future than we have done in the past. A progressive university should make the maintenance and improvement of its standards its chief concern. It must be recognized as a place where truth is discovered and taught. I propose to discuss some of the means by which we can reach this end.

In dealing with the question of university organization, we can divide our members into three groups: (1) heads of departments; (2) other instructors and graduate students; (3) undergraduates in the various courses, liberal or professional. This is not the conventional line of division, but it is the one which best serves our present purpose.

Heads of departments ought to be fewer in number, and better paid. This is probably true of American universities as a class; it is certainly true of Yale. We have too many full professors, and, partly as a consequence of this, we pay them too small salaries. If we see a store or factory where there are a large number of more or less separate departments whose heads receive low salaries, we believe that the business is being wrongly administered. It is not always safe to draw too close analogies between industrial work and

[1] From the report of President Hadley.