having recourse to what Mendeléef denominates the metachemical and vague ('verschwommene') theory of electrons. The radioactive atoms, with their high atomic weights, possess, as large centers of mass, the power of holding a relatively large number of ether atoms, though there is no chemical combination. The entrance and exit of these ether molecules from the groups is accompanied by those disturbances of the ethereal medium which cause the rays of light. The phosphorescence of bodies immersed in liquid air is caused by the increased absorption and condensation of ether molecules at low temperatures. The original article contains many other suggestive thoughts, such as the probability of a fifth halogen element, with atomic weight of about three, corresponding to the fifth metal of the alkalies.

ATMOSPHERIC CORROSION OF ZINC.

A STUDY of the action of the atmosphere upon zinc has recently appeared in the *Proceedings* of the Chemical Society (London), by G. T. Moody. Strips of thin sheet zinc were exposed for five months to the action of the atmosphere, with the result that the metal became completely covered with a half-crystalline coating of a basic carbonate, of formula $ZnCO_3, 3Zn(OH)_2$. From this it appears that the corrosion is to be ascribed, not to a direct oxidation, but to the action of the atmospheric carbonic acid. A confirmation of this was found in the fact that zinc dissolved in a saturated solution of carbon dioxid, the acid carbonate of zinc being formed, and on spontaneous evaporation a precipitate of basic carbonate was formed, of the same composition as that occasioned by atmospheric corrosion. While commercial hydrogen peroxid has a very rapid action on zinc, converting it into the hydroxid, pure hydrogen peroxid, even of thirty per cent. strength, is entirely without action, and the same is true regarding iron. Lead, on the other hand, is rapidly acted on by this reagent, being converted superficially into lead peroxid. Thus the action of the atmosphere on lead may be due to the presence of hydrogen peroxid, but this can not be the case with the corrosion of zinc and iron. That zinc is less corroded in the atmosphere than iron is attributed by Moody to the fact that so much of the carbonic acid is retained by the zinc in the form of basic carbonate, while in iron the carbonic acid is set free as soon as it has done its work, and thus keeps on in its attack upon the iron.

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CURRENT NOTES ON METEOROLOGY.

METEOROLOGICAL PHENOMENA OF THE MONT PELÉE ERUPTION, JULY 9, 1902.

IN the *Popular Science Monthly* for January, Professor T. A. Jaggar gives an account of the eruption of Pelée on July 9, 1902, in which several of the meteorological phenomena associated with the eruption are noted. One of the most striking features of the explosion was a great column of steam observed at 8 A.M. on July 11. "A vertical puff from the volcano rose 10,000 feet into the air, showing at first superb gray-brown cauliflower surfaces, and later taking on smooth outlines, with a funnel-shape and a feathery fringe." A similar steam column was observed on July 16, and a fine photograph was taken of it. The height of this latter column was between four and six miles. As clearly seen in the photograph, the upper part of the cloud was turned towards the east, showing the effect of the anti-trades. On July 9 the tops of a number of *cumulus* (? cumulo-nimbus) clouds were seen to be far below the black dome of volcanic dust. The dust in the air gave the moon a dim reddish-yellow appearance. No strong indraft of air towards the volcano was noted.

DEMTSCHINSKY'S LONG-RANGE FORECASTS.

IN the journal *Climat*, the publication of which was begun in 1901, and to which reference has been made in these notes, Demtschinsky, a Russian engineer, has been making public long-range weather forecasts, based chiefly on supposed lunar influences. These forecasts and the method used by Demtschinsky in making them, have lately been subjected to a critical study by Professor Klossovsky, of Odessa, the director of the Meteorological Service of southwestern Russia

('Examen de la méthode de la prédiction du temps de M. N. Demtschinsky,' Odessa, 1903, 8vo, pp. 74). The conclusions reached by Professor Klossovsky are distinctly unfavorable, as was to be expected. The author suggests that if M. Demtschinsky persists in issuing these forecasts, the whole matter should be taken up by the International Meteorological Committee. Dr. Klossovsky, in connection with his study of the Demtschinsky forecasts, summarizes briefly the present state of weather forecasting, and outlines the older method of mean values, the new method of synoptic meteorology, the use of analytical methods and the question of periodicity.

THE 'LINE STORM' FALLACY.

In the annual summary of *Climate and Crops, New England Section,* a tabulation of daily precipitation between September 14 and 28 at Boston, during 32 years (1872–1903) is given, with a view to throwing light on the popular belief in the equinoctial storm. On September 21 measurable amounts of precipitation occurred but six times during the period, and for the week of which September 21 was the middle day, there have been but twelve years in which the total weekly precipitation was over one inch.

THE CLIMATE OF IOWA.

The 'Annual Report of the Iowa Weather and Crop Service' (Des Moines, 1903) contains an appendix on 'Iowa Climate and Crops,' in which there is a good brief account of the climate of the state (pp. 11–23).

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RECENT ZOOPALEONTOLOGY.

REVISED EDITION OF ZITTEL'S PALEONTOLOGY.

The first volume of the revised edition of von Zittel's 'Grundzüge der Paläontologie,'* which has just made its appearance, is a work of 558 pages covering the whole field of fossil invertebrates. It represents an enlargement of about forty pages over the original edition, with twenty new figures, but except for certain portions relating to the corals and echinoderms, there is essentially no change either in subject matter or in classification. The author remarks in the preface that he has duly considered the merits of the new system adopted in the English version, but has chosen to abide by the older established usage. In the case of the brachiopods and trilobites at least, there are many who will regard this as a backward step, where the studies of Beecher and others have resulted in as satisfactory a classification as exists in the animal kingdom, and it is rather a pity that in the choice of new figures, none of the classic illustrations showing stages of development in these groups were selected. Whether the vertebrate classes will be treated with equal conservatism remains to be seen when the second volume appears.

* 'Grundzüge der Paläontologie,' by K. A. von Zittel, Abth. I., 1903, R. Oldenbourg, Münich and Berlin.

TERTIARY ELASMOBRANCHS FROM SOUTHERN ITALY.

Those interested in the distribution of Tertiary elasmobranchs will find this memoir of Dr. Pasquale,* a student of Professor F. Bassani at Naples, particularly useful, not only on account of the new data it contains, but also because of the careful comparisons the author has made with the type specimens of older writers, resulting in many cases in revised determinations. The various tables given at the end of the memoir are of great convenience. Signorina Pasquale has done for the Italian faunas what Leriche has recently accomplished in praiseworthy manner for the Belgian, in his memoir published by the Brussels Museum, and it is to be hoped that other localities will be taken up by paleichthyologists in similar close detail.

JURASSIC FISHES FROM SPANISH LITHOGRAPHIC LIMESTONE.

Since the discovery made by L. Vidal a year or two ago of the occurrence of lithographic stone in northeastern Spain exactly comparable to that found in Bavaria and central France, a number of fossil remains have been

* 'Revisione dei Selaciane Fossili,' by Maria Pasquale, *Atti Accad. Sci. Napoli,* Vol. XII., No. 2, 1903.