that Brooks holds has startled me, even although I cannot altogether appreciate his appeal to writers whose thought is still so comparatively medieval as Sir Thomas Browne and Berkeley. The remarks on determinism, for instance, are particularly apposite. If, in my turn, I might dare to speak for contemporary philosophers, I should say, there is no material for controversy, save under that misconception of the situation which Brooks so well lays bare. The crux of our discussion, it may be noted, seems to center in an equivoque as between the precise meaning attached to the term 'naturalism' by Brooks and Ward respectively.

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NOTES ON INORGANIC CHEMISTRY.

AT the sixth annual meeting of the German Electro-chemical Society, held at Göttingen in June, a strong address was delivered by Professor Hittorf on the necessity for the erection of special laboratories and creation of new chairs for inorganic chemistry in the German universities. After alluding to the address before the last meeting of the Society by Van t'-Hoff on the increasing significance of inorganic chemistry, he showed the overwhelming predominance given to organic chemistry in the universities. There are but three German universities where there is any adequate teaching of inorganic chemistry. At all the rest the full professors of chemistry are almost exclusively devoted to the organic field. If Germany is to keep pace in the practical world with England, America and France, a revival of inorganic chemistry is necessary, and for this men and laboratories are needed.

AT the same meeting a new electrical resistance material for high temperature was described by W. C. Heräus. The platinum alloys are not satisfactory owing to their actual low resistance, although their relative resistance is high. The poorest conductor is the 30% iridium platinum alloy, and here the resistance for a meter of wire 0.3 mm. diameter is only 5 ohms. The new resistance material is formed by mixing clay with 10% to 15% of platinum, molding into pencils and heating to about 1250° in a reducing atmosphere. There appears to be formed a platinum silicon alloy which serves as the conductor. The resistance increases with the temperature up to a certain point, and then at higher temperature decreases, perhaps owing to the formation of more platinum-silicon alloy. The pencils can be used up to a red heat and promise to have a very considerable practical application.

SOME time since a specimen of malachite was described by W. Autenrieth which contained an appreciable quantity of iodin. Exhaustive search, however, failed to find any further similar malachites until recently, when a series of malachites and cuprites from New South Wales proved almost without exception to contain iodin. These are described in the *Chemiker-Zeitung*. The amount of iodin in the malachite is 0.15%, and the iodin is given off merely on heating the mineral to low redness. The amount of iodin in the cuprite is less than one-tenth that in the malachite. These minerals were wholly free from silver and bromin, and chlorin was only occasionally present and then in mere traces.

J. L. H.

CURRENT NOTES ON METEOROLOGY.

WEATHER PERIODICITIES.

THE question of periodicities in the weather has received the attention of many meteorologists and physicists; publications on this subject have been numerous and varied; but as yet no sort of general agreement as to, or acceptance of, results has been reached. In this country Clayton has been studying weather periodicities for some years, and his conclusions, although they have not attracted the notice that they deserve, have been noteworthy. In a recent paper entitled *Investigations on Periodicity in the Weather* (Proc. Amer. Acad. Arts and Sciences, XXXIV., No. 22), Clayton carries his investigations a good step farther in advance. Among his results it is shown that there is a small range in the frequency of thunderstorms in the United States, the plotted curves indicating a maximum a few days preceding the greatest northern declination of the moon. A similar result was obtained by Ekholm and Arrhenius for the thunderstorms of Sweden. Further, when the mean daily departures from

the normal temperatures at Blue Hill Observatory from October, 1898, to February, 1899, are plotted, it appears that the minimum temperatures of October, December, January and February occurred very near the times of new moon, the intervals between the minima thus approximating the length of a synodic period of the moon. This paper presents also a summary of a few of the important results reached by European investigators along this same line.

LAKE LEVELS AND PRECIPITATION.

UNDER the title *Variations in Lake Levels and Atmospheric Precipitation*, there has been issued by the Weather Bureau, a report by A. J. Henry, upon the results of a study made by him in connection with the work of the Weather Bureau on the Great Lakes. The conclusions reached are that it seems possible to indicate the level of the Lakes approximately by closely observing the precipitation in the various watersheds, especially the amount of snow and the manner of its disappearance. All inferences as to the probable effect of precipitation on the Lake levels must, however, be contingent upon the maintenance of a constant cross-section and slope in the present connecting channels.

SALT BUSHES IN CALIFORNIA.

SOME interesting experiments have been carried on during the past 18 years at the California Agricultural Experiment Station, in connection with the adaptability of the Australian salt bush to the climate and soils of California. It appears (Univ'y of Cal., Agr. Exp. Sta. Bull. No. 125) that the *atriplex semibaccata* grows on strong alkali soil, furnishing a very large amount of satisfactory pasturage and fodder, and that it also thrives on arid non-alkaline uplands, even where wells have to be sunk 200 feet to water, and where the annual rainfall has been less than five inches. This salt bush cannot endure too heavy summer rains, nor the moist atmosphere of many warm countries, and seems thus singularly well adapted to growing on the deserts and alkaline wastes which are somewhat too common in the southwestern portion of the United States.

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RECENT ZOOPALEONTOLOGY. 2.

These notes upon recent papers in zoloogy and paleontology will be continued serially.

Triassic Life in Germany.—Under the title, *Die Bildung der germanischen Trias, eine petrogenetische Studie*,* Professor Fraas of Stuttgart, contributes an extremely readable and valuable paper upon the relation between the geography and the fauna during the Triassic period of Germany. This is a model of the best modern mode of treatment in which the geology, geography, zoology and botany of a newly discovered region, are all considered together. It is well shown, that the Trias was preëminently a period in which prominent characters of the great orders of reptiles were fixed. The transition from fresh water to marine conditions by the invasion of the sea, and the corresponding transformation of land and coast forms into free living marine forms is clearly correlated. The changes in the marine and fresh water forms are not only traced in a sketch of the evolution of the invertebrates, but of the vertebrates as well. One suggestion which catches the eye has long been in the mind of the reviewer, namely, that the so-called *Placodontia*, an order of extremely doubtful relations and affinities, known only from the skull, are not at all related to the group of Theriodonts with which they have been placed, but that they represent a branch of the turtles living along the sea coasts, and retaining both in the upper and lower jaw large teeth for the purpose of crushing the shells of small mollusks.

A Triassic Chelonian.—Another very important paper by the same author is upon *Proganochelys Quenstedtii* Baur, a recently discovered example of this Chelonian from the Keuper, or upper triassic rocks of Germany. This is by far the oldest known type of the order. The first remains were apparently discovered in 1863, but not clearly defined until 1887, by Baur. This specimen which was received in the Stuttgart museum in 1897, is far more complete, and enables Professor Fraas to give a description of the dorsal and ventral shields. These show that *Proganochelys* was a true land and swamp dweller, related to the modern

*Separat-Abdruck aus Jahreshefte D. Ver. F. Vaterl. Naturkunde in Württemberg, 1899.