these objects from the drift of France. He claims that they represent the most common instruments of palæolithic man. They very rarely show distinct secondary chipping or the bulb of percussion; for which reasons his arguments do not seem to have convinced the Society; yet some of the specimens he figures might well pass as human handiwork. (*Les veritables Instruments usuels de l'age de la Pierre.* Paris, Imprimerie Larousse, 1897.)

WAS BUDDHA A MONGOLIAN?

FERGUSSON and others have claimed that the celebrated founder of Buddhism was of Mongolian origin. With an astonishing ignorance of ethnic traits, Fergusson supported this by the bold assertion that in India Buddha is always represented with wooly hair!

Professor E. W. Hopkins, of Yale, in his 'Notes from India' in the last (19th) volume of the 'Journal of the American Oriental Society,' takes occasion to report on this point. Many ancient figures of Buddha have the hair gathered up in little spiral, conch-shaped curls. According to tradition Buddha had curly hair and wore it short. From an examination of many statues it was evidently wavy, but never wooly. In some instances it is colored red. The general evidence is that so far as hair was concerned he preserved the type of the white race, and was equally remote from the Mongolian and the Negro.

MEXICAN ANTIQUITIES.

PROFESSOR FREDERICK STARR is preparing a 'Manual of Mexican Archæology,' which is sure to be a complete and valuable work, and one much needed at this time.

He anticipates portions of it in Vol. VII. of the 'Proceedings of the Davenport Academy of Natural Sciences,' by an article on 'Notched Bones from Mexico,' in which he explains those described by Dr. Lumholtz to be musical instruments (as I also did in SCIENCE, May 27). Another article is on a shell inscription from Tula. It shows a fragment of *Haliotis* shell with four Mayan characters engraved upon it. This leads him to what he calls the 'startling' conclusion that there were trade relations between Tula, at the time of its occupancy, and the Mayan districts. But that fact is well known from Sahagun's 'History;' and the Tula, some forty miles north of Mexico, was surely not Tula the Magnificent, where Quetzalcoatl ruled his million of warriors!

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NOTES ON INORGANIC CHEMISTRY.

THE place of helium and argon in the periodic system has already caused much discussion, and now, that several other elements of similar nature have been discovered, the conjectures as to what to do with the whole group will be forthcoming doubtless in great profusion. Happily the *mêlange* known as the Group VIII. in Mendeléef's table offers a refuge equal to almost any emergency that may arise. One element might exist in this group with an atomic weight somewhere from 1 to 7, another 19 to 23, another or even three between 36 and 39, three more between 80 and 85, three more between 128 and 132, to say nothing of possibilities of higher atomic weight. It is even possible that three elements could exist in place of each of the first two. From their position in the table, nothing could be foretold as to the properties of elements filling these places, save perhaps that their character would be neither positive nor negative (*i. e.*, without chemical affinity?) and that their valence would be zero (*i. e.*, forming no compounds?). These new elements, as far as they have been described, do singularly fulfil these conditions, helium falling into the first place, neon the second, argon and metargon the the third and krypton the fourth. It is,

however, too early for any serious study of the position of at least several of these elements, inasmuch as the question of even their existence is not settled. However, in a recent paper before the Royal Society, Sir William Crookes shows that helium, argon and krypton fall naturally into the periodic scheme of the elements as devised by him, which differs not very materially from that of Mendeléef. In a postscript to his paper printed in the *Chemical News*, Crookes shows that neon and metargon as far as described also fall naturally into his scheme.

The boiling point of ozone was determined approximately by Olszewski a few years ago as about —106°. More recently Professor L. Troost has made several very accurate determinations, which are described in the *Comptes Rendus*. The temperature at which the liquefied ozone boiled was determined by an iron-constantin couple, and was —119°. This may then be considered the boiling point of ozone at atmospheric pressure.

It has long been hoped that a study of graphitic acid would lead to better knowledge of the structure of the carbon molecule in graphite. The greatest obstacle has been the difficulty of oxidizing the graphite to graphitic acid. Repeated treatments of graphite with nitric acid and potassium chlorate finally yield but a very small amount of the acid, even if explosions, which are very apt to occur, are successfully avoided. In the last number of the *Berichte* L. Staudenmaier describes a method which consists chiefly in treating graphite that has been partially oxidized by the old method, with a mixture of potassium permanganate and sulfuric acid. In this way the graphitic acid may be rapidly obtained in considerable quantities, and it is to be hoped that its study will now be prosecuted until light is thrown on the graphite molecule and possibly on allotropy in general.

The question of whether the formula of potassium permanganate should be written $KMnO_4$ or $K_2Mn_2O_8$ has been in the opinion of many chemists unsettled, even though it was recognized that the salt was isomorphous with the perchlorate, $KClO_4$. Even now, in his periodic scheme, Crookes puts both fluorin and manganese into the same group with iron and the platinum metals. The last *Journal* of the Chemical Society (London) contains a research by J. Murray Crofts, of Emmanuel College, on the molecular weights of permanganates, perchlorates and periodates in solution. The salts used were those of potassium and sodium except in the case of the periodate, where the potassium alone was used. The freezing-point method was used, the solvent being Glauber's salt. In every case the molecular weight was that of the simpler formula, so that, as far as solution goes, the formulæ must be considered to be $KClO_4$, KIO_4 and $KMnO_4$.

J. L. H.

SCIENTIFIC NOTES AND NEWS.

BIOLOGICAL STATION OF THE UNIVERSITY OF INDIANA.

Mr. A. C. Yoder, of Vincennes, Ind., writes that the Indiana University Biological Station, situated at Vawter Park, Ind., closed its work of the summer on August 19th. The Station was organized in 1895 by Dr. Carl Eigenman, of Indiana University. There is a direct connection between the work done at the Station and at the University proper, credit being given at the one for work done at the other. The Station since organized has been located on Turkey Lake, in northern Indiana. Turkey Lake, about seven miles long and two miles wide, is the largest of the numerous fresh-water lakes found in northern Indiana and is two miles north of the divide, separating the St. Lawrence and Mississippi basins. An abundance of biological material can be had from the lakes on both sides of the divide, and thus are offered excellent opportunities for studying the varia-