way of contrast with the external air, and not at all indicative of actual temperatures. Caves are coldest in winter, but if no water then enters, the formation of ice is delayed until milder weather outside thaws the surface ice or snow. The fact that ice caves are unknown in regions where the ordinary winter temperatures is not below freezing is taken to prove that their true cause is the most manifest one, and that the ice is not due to reduction of temperature by evaporation, and especially that it has nothing whatever to do with a lingering of the glacial period underground. Further details are promised in a later publication.

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CURRENT NOTES ON ANTHROPOLOGY.

ETHNOGRAPHY OF MADAGASCAR.

Two interesting articles on the above subject may be compared, with special reference to the ethnic position of the Hovas.

The one is by Mr. W. L. H. Duckworth and appears in the *Journal Anthropological Institute*, February, 1897, on some skulls from Madagascar in the Museum of Cambridge University. His conclusion from his very careful measurements is that the Hova skull finds its counterpart in the Borneo, therefore Malay type, while those from the Betsileo and Betsimisaraka tribes have marked African traits.

This is in accordance with the general opinion that the Hovas are of Malayan origin. Yet Professor Letourneau, in the Bulletin of the Paris Anthropological Society, throws overboard all the evidence, linguistic and physical, which attaches the Hovas to the Malayan stock, and claims them as purely African, along with the other natives of the island. His arguments are too hasty to carry conviction, and it cannot be said that he has seriously shaken the prevailing opinion.

STUDIES IN MAYAN HIEROGLYPHS.

Two short but valuable articles have recently been published by Dr. Förstemann; the one, the sixth number of his series 'Zur Entzifferung der Mayahandschriften;' the other a paper in *Globus*, Bd. LXXI., No. 5. The latter takes up eight glyphs, and sets forth their relations in the Dresden Codex, and suggests what they mean, or, what they *cannot* mean, for the logical process of exclusion is here of great use.

In the former article he examines the passage of the Dresden Codex which covers the upper thirds of pages 31 and 32. There is evidence, which he mentions, that to the writer of the Codex this was an important paragraph. It deals with large numbers, and not with past or present, but future time. It can, therefore, be nothing else than a prophecy or forecast. What was connected with such a calculation can now be only surmised, as this portion of the literature was transmitted orally. Incidentally (p. 4) it is shown that the calculations of the Dresden Codex date from an epoch anterior to those found on the latest sculptures of Copan.

PSYCHICS IN THE STUDY OF MAN.

NOTHING could be more proper than to include in an anthropological library the 'Proceedings of the Society for Psychical Research,' although it has a queer repute for ghost hunting, etc. The address of its President, William Crookes, F.R.S., is a pamphlet well worth reading and thinking about by the most physical anthropologist. It is a study of the effects of environment on man, considering how the world would look to him if he was the size of a mite, or, on the other hand, as tall as a tree; how he could be influenced by an increase or decrease in the power of gravity, and what might happen to him if he could manage to perceive the millions of vibrations which

now pass through him without his knowing anything about them.

Such studies ought, indeed, to be the foundation of the science of man, involving, as they do, the recognition of his limitations and also his incalculable capacities. It is foolish for scientific men to reject or neglect them on the ground that they are 'visionary' or 'spiritualistic.' What we want is to pursue knowledge in every direction, and to its limits, if we can.

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NOTES ON INORGANIC CHEMISTRY.

In many of the acids, especially of the less strongly negative elements, the oxygen may be replaced in whole or in part by fluorin, a pair of fluorin atoms taking the place of each oxygen atom. This is true of the borates in the third group, all the acids of the fourth group except the carbonates, the vanadinates, columbates, tantalates, arsenates and antimonates in the fifth group, the chromates, molybdates, tungstates and uranates in the sixth. Attempts have been made by Weinland and Lauenstein to enlarge this list and their results are given in a recent *Berichte*.

By the action of hydrofluoric acid on the iodates, difluoriodates were formed, of the formula KIO_2F_2, $NaIO_2F_2$ and $NH_4IO_2F_2$. These salts are comparatively stable when dry, but are decomposed readily by moisture. Efforts to form fluo-periodates, fluo-manganates and fluo-tellurates have thus far been unsuccessful.

The ordinary cadmium sulfate crystallizes with 8/3 H_2O, while the sulfates of magnesium, zinc, iron, nickel, cobalt and manganese contain seven molecules of water of crystallization. Cadmium sulfate, however, forms double sulfates isomorphous with the double sulfates of the others. Mylius and Funk have just succeeded in obtaining a cadmium sulfate with the normal amount of water. A solution of the salt, saturated at 70° is suddenly cooled to —20°, and by agitation a cryohydrate crystallizes out. When the temperature is then allowed to slowly rise, the cryohydrate melts, but leaves a granular deposit of crystals sometimes several millimeters in length, of $CdSO_4$, $7H_2O$, cadmium-vitriol. The crystals are, however, very unstable.

The same *Berichte* contains two additional papers by Professor Söderbaum, of Gothenburg, on the acetylid of copper. It was recently mentioned in this column that he had formed a complex compound by the action of acetylene on an ammoniacal solution of copper sulfate. He now shows that by carrying on the action in quite dilute solutions in the cold, the precipitate contains two atoms of carbon for every atom of copper, and he takes as its formula $C_{24}Cu_{12}$, H_2O. The substance is similar to the one formerly described as obtained in a hot solution, but is rather more explosive, and the humus-like compound formed by its treatment with acids is richer in carbon. Professor Söderbaum proposes this method for the quantitative estimation of copper, as well as its quantitative separation from zinc.

A new element, Bythium, is announced in the *Electrochemische Zeitschrift* by Theodor Gross. A fused mixture of silver sulfid and silver chlorid is electrolyzed in a nitrogen atmosphere, using platinum electrodes free from iridium. In the melt is found a dark gray powder, insoluble in aqua regia and in ammonia. Fused with alkaline carbonate it gives a melt soluble in hydrochloric acid, from which hydrogen sulfid gives a brown precipitate. The yield of the new substance is 5% of the original sulfur used. From the fact that there is a corresponding loss of sulfur, the author considers that this bythium is formed by the decomposition of sulfur, though he admits that since there is a small (3%) loss of chlorin