

NOTES ON INORGANIC CHEMISTRY.

A NEW mineral from copper mines near the Burra in South Australia is described in the *Journal* of the Chemical Society (London) by G. A. Goyder. It is called sylvanite and is a thiovanadate of copper, this being the first recorded instance of a sulfid mineral containing vanadium as one of its principal constituents. The formula of the new mineral seems to be $3\text{Cu}_2\text{S}$, V_2S_5 or Cu_3VS_4 , cuprous thiovanadate.

AN article by W. H. Hess on the origin of cave saltpeter is found in the *Journal of Geology*. Many of the caves in limestone regions of this country contain notable deposits of earth very rich in saltpeter. This is particularly true of the Mammoth Cave of Kentucky, where may still be seen the remains of the vats and wooden pipes used in the manufacture of saltpeter for gunpowder during the War of 1812. Indeed it is said that had it not been for this saltpeter and that from some other similar caves, this war could not have been successfully waged. During the Civil War much saltpeter was obtained from the Southern Caves. It has always been rather assumed that the origin of these saltpeter deposits is to be found in the guano from the bats, which swarm in immense numbers in parts of these caves. This, however, the author of this paper dissents from, holding that these deposits have come from evaporation of water which has percolated through the surface soil above, from which it has taken up the soil nitrates. Similar nitrate deposits are sometimes found under rock-ledges. The paper cites in proof of this position analyses of cave-earth, cave-bat guano, and of the water which drips from above into the Mammoth Cave.

SINCE the hypochlorites are formed by the electrolysis of solution of chlorids, efforts have been made to utilize the reaction in technical chemistry. A study of this character is reported in a recent *Comptes Rendus* by André Brochet. He finds that in concentrated solutions in its later stages, the electrolysis of hypochlorites resembles that of the chlorids, tending toward the same limits. It would therefore follow that the preparation of concentrated solutions of hypochlorites from the chlorids can hardly be hoped for by direct electrolysis.

WE copy from *Nature* the prizes offered in chemistry by the *Société d'Encouragement pour l'Industrie Nationale* for 1901. 1,000 francs for the utilization of any waste product; 2,000 francs for a publication useful to chemical or metallurgical industry; two prizes of 500 francs each for scientific researches, the results of which can be utilized in industrial work; 2,000 francs for an improvement in the manufacture of chlorin; 1,000 francs for the discovery of a new alloy useful in the arts; 2,000 francs for a study of expansion, elasticity and tenacity of pottery clays and glazes, for a scientific study of the physical and mechanical properties of glass, for a new method of manufacturing fuming sulfuric acid and sulfur trioxid, and for the manufacture of a steel possessing specially useful properties by the introduction of a foreign element. Competition is open to all, but the memoirs, which must be sent in before December 31st, must be written in French.

J. L. H.

MUSEUM AND ZOOLOGICAL NOTES.

THE brief *Report of the Director* of the Manchester Museum for 1899-1900 shows the steady progress of this active Museum, which has recently acquired the Schill collection of butterflies and moths and the Layard collection of weapons and other implements from the Pacific islands. The experiment has been tried of opening the Museum on the first Wednesday of each month, and on this occasion having certain portions of the collections explained by some member of the staff. The result has hardly met with the success it merits, since the attendance has been small, particularly so when it is remembered that Manchester has a population of over half a million. The latest publication of the Museum is 'Notes on some Jurassic Plants in the Manchester Museum,' by A. C. Seward.

THE *Annual Report of the Director* of the Carnegie Museum, Pittsburgh, has recently been issued and shows a decided specialization in the line of fossil vertebrates, one-third of the Museum staff being accredited to the Department of Paleontology, Mr. J. B. Hatcher being the curator. The collections made in 1899

have already been noticed in *SCIENCE*, and equally good results may be expected from the work of the field party sent out early this year. The number of visitors during the current year is estimated at 350,000. Special effort has been made to put the Museum in touch with the public schools by issuing loan collections and by the 'Prize Essay Contest.' In the separate report on this it is interesting to note that the subjects most frequently chosen were those objects that appealed most strikingly to the eye. While this is only natural, yet it calls attention to the fact that while a museum may be a collection of labels illustrated by specimens, there is considerable danger that the label will be overlooked by the average visitor unless there is something about the object itself, or the manner in which it is shown, to attract attention.

SOMETHING of glamor hangs over the white cattle of Chillingham and Cadzow; they have been sung by poets and engraved by Bewick, the Chillingham herd has literally been within one of extinction and finally some authorities have considered these cattle as direct descendants of the vanished Urus. The last writer to discuss them is R. Hedger Wallace, who has undertaken an exhaustive inquiry into their origin and history, whose results are published in the *Transactions of the Natural History Society of Glasgow*. While Mr. Wallace explicitly states that his paper must not be considered as final, he yet states as his opinion that the white cattle are simply the descendants of Roman cattle imported into England during the Roman occupation. An extensive, though confessedly incomplete, bibliography of works and articles relating to the 'Bovidæ,' wild and domesticated, living and extinct, is appended.

F. A. L.

BOTANICAL NOTES.

THE BIG TREES OF CALIFORNIA.

NOT long ago the staff of the Division of Forestry of the United States Department of Agriculture prepared a most valuable and suggestive report on the big trees of California, which was issued as a Senate document, and afterwards published as a separate paper by the Department. The purpose of the report is

to call attention to the groves of these great trees, and to enlist sufficient interest in them to secure their preservation. Their fine wood has tempted the lumberman, and in spite of their unwieldy size they are felled and split and sawed into lumber to such an extent as to threaten the utter destruction of many of the groves.

There are ten main groups of groves of the big trees scattered along the west side of the Sierra Nevada range, 'from the middle fork of the American River to the head of Deer Creek, a distance of two hundred and sixty miles.' Probably not more than five hundred trees in these groups are remarkable for their size.

The only grove thus far safe from destruction is the Mariposa, while 'the finest of all, the Calaveras Grove, with the biggest and tallest trees' has recently (April, 1900) come into the possession of a lumberman who quite certainly intends to cut the trees into lumber.

The report should be read by every lover of trees, and every effort should be made to have Congress take steps to preserve several of the finest of these groves. The excellent half-tone plates from photographs add interest and value to the paper.

THE AGE OF THE BIG TREES OF CALIFORNIA.

IN the report issued by the Division of Forestry in the United States Department of Agriculture referred to above, a discussion is made of the age of the Big Trees. The conclusion is reached that their age runs far up into the thousands, the great age of five thousand years being mentioned, apparently with approval. The writer of this note once counted with much care the rings of growth of a tree which was felled in 1853, and whose stump constitutes the floor of the so-called dancing pavilion. This count was made from circumference to center, and every ring in all that distance was counted, no 'estimates' or guesses being made. The result was that eleven hundred and forty-seven (1,147) rings were counted, and accordingly it is safe to say that this tree, which was fully twenty-four or twenty-five feet in diameter, and considerably more than three hundred feet in height, acquired these dimensions in eleven hundred and forty-seven years. The writer entertains grave doubts whether any of the ex-