discussed. The chemistry of enrichment is considered: firstly in the light of experimental data; secondly from considerations of the composition of mine waters, thirty-seven samples having been analysed. Very valuable are the contributions on the chemical relations and occurrence of the minerals of copper, silver, gold, lead, zinc, and iron, and of certain gangue minerals, including felspars, kaolin, sericite, alunite, sulphates, and carbonates. There is a brief review of the several classes of sulphide deposits in the States, and a detailed review of the various mining districts. While having very important bearing on the economic side of mining geology, the bulletin forms a valuable contribution to the mineralogical chemistry of the sulphide minerals.

IX.—Probable Origin of the African Elephant.

W. O. Dietrich. — Zur Stammesgeschichte des afrikanischen Elephanten. Zeitsch. f. induktive Abstammungs- und Vererbungslehre, vol. x, p. 49, with 7 text-figures, 1913.

In this paper the author discusses the probable origin of the African Elephant. He first points out how very little material there is at present upon which to base an opinion, and gives a useful list of the principal discoveries. He then discusses at some length the chief dental characters which are of importance in determining relationships within the group. From the nature of its tooth structure he concludes that the African Elephant, while in some respects highly specialized, is an archaic type, and expresses his belief that its primitive characters cannot be the result of retrogressive changes in a more advanced type such as *Elephas antiquus*, but on the other hand prove an independent descent from some at present unknown type of Mastodon. It is important to note, however, that although a Mastodon has been recorded from South Africa, all the true elephants at present known from deposits of Pliocene or Pleistocene age in Africa (the Sudan, Zululand, and recently British East Africa) possess teeth of a more specialized type than those of *E. africanus*. It seems, therefore, by no means certain that this species may not have acquired the peculiar characters of its dentition as a result of retrogressive changes, possibly in consequence of some peculiarity in its food.

A table is given, showing at a glance the various views that have been expressed on this subject.

C. W. A.

X.—Brief Notices.

1. Wisconsin Geological and Natural History Survey. — An instructive work on "The Geography and Industries of Wisconsin", by Professor R. H. Whitbeck, has been issued by this survey (Bulletin No. xxvi, Educational Series, No. 3, 1913). The mineral industries include, in order of importance, iron-ore, zinc-ore, stone, clay, mineral water, lime, sand, and lead-ore. The annual output is valued at about twenty million dollars. No coal occurs, the bed-rocks being all older than any coal-bearing formations. In the value of commercial mineral waters Wisconsin is foremost among the States. More

than six million gallons from the mineral springs of Waukesha are sold annually. More important, however, are the other sources of wealth. The forest industries are stated to have yielded "far more wealth than the gold-mines of California"; in agricultural industries Wisconsin ranks about tenth in States for the annual value of farm products: the soils due mostly to glacial drifts are generally fertile, while the manufacturing industries include lumber, metal-work, farm produce, leather, etc. The work is illustrated by maps, diagrams, and photographic views of mine-works, quarries, forest, and logging scenes, soil formation, farm and fruit lands, etc.

2. Mount Lyell Copper District of Tasmania.—On this subject an important article has been published by Messrs. C. G. Gilbert and J. E. Pogue (Proc. U.S. Nat. Mus., vol. xlv, No. 2005, p. 609, 1913). The authors deal with the Mount Lyell and North Mount Lyell Mines: the former yields chalcopyrite, etc.; the latter yields bornite predominantly, with chalcocite, also tetrahedrite and chalcopyrite. The history and geology of the area receive due attention, and the authors discuss the paragenesis and secondary enrichment of the ore-deposits.

REPORTS AND PROCEEDINGS.

Geological Society of London.

December 17, 1913.—Dr. Aubrey Strahan, F.R.S., President, in the Chair.

At the conclusion of a paper entitled a "Supplementary Note on the Discovery of a Palæolithic Human Skull and Mandible at Piltdown (Sussex)", by Charles Dawson, F.S.A., F.G.S., and Arthur Smith Woodward, LL.D., F.R.S., Sec.G.S., an Appendix by Professor Grafton Elliot Smith, M.A., M.D., V.P.R.S., was inadvertently omitted from the report published last month (see pp. 44–5). Professor Elliot Smith pointed out that the presence of the anterior extremity of the sagittal suture, which hitherto had escaped attention, had enabled him to identify a ridge upon the cranial aspect of the frontal bone as the metopic crest, and thus to determine beyond all question the true median plane. It is 21 mm. from the point of the large fragment (in the frontal region). Mr. F. O. Barlow called his attention to the fact that the contour of the frontal bone when viewed in norma facialis confirms this identification of the median plane, because the summit of the curve is directly above the endocranial metopic crest. Professor J. T. Wilson pointed out to him that the direction of the orbital plate of the frontal bone is such that it assumes its proper position only when the fragment is so placed that the above-mentioned crest is in the median plane. The backward prolongation of the frontal median crests cuts the parietal fragment precisely along the line determined by Dr. Smith Woodward on other grounds. It indicates that the posterior part of the sagittal suture is obliterated—a view that is confirmed by the presence of an irregular wavy furrow upon the bone, precisely similar to that found in other skulls where this suture had recently closed. This may occur in modern man at