$12H_2O$. Sulfoborite is the first representative of a new group of natural compounds of borates and sulphates, which has an analogue in lüneburgite, a hydrous compound of magnesium borate with phosphate of magnesium. G.

CORRESPONDENCE.

DISCOVERY OF DICERATHERIUM, THE TWO-HORNED RHINOCEROS, IN THE WHITE RIVER BEDS OF SOUTH DAKOTA. Several years ago Prof. Marsh described under the generic name of Diceratherium a two-horned Rhinoceros from the John Day beds of Oregon. Naturally we should expect to find the ancestor of the John Day form in the White River beds; but up to the present it has not been reported. The Princeton Scientific Expedition of 1894 has been fortunate in securing three skulls which at present are not distinguishable generically from Diceratherium. One of these skulls has been freed from the matrix and it presents characters which at once distinguish it from any of the John Day species yet described. It may be called Diceratherium proavitum in reference to its relation to the John Day forms.

The type specimen consists of a nearly complete skull without the lower jaws. The principal specific characters are as follows: Skull long and low, broad especially in the frontal region; superior surface slightly concave anteroposteriorly; no well defined sagittal crest; strong postorbital processes. Nasals strong but not coössified. About one-third the distance from their extremities to their junction with the frontals are developed upon their upper and outer edge a pair of rugose prominences resembling very much in appearance the rugosities supporting the nasal horns of the recent rhinoceroses; they doubtless served the same purpose in Diceratherium. Just behind this pair of rugosities the nasals are constricted, but posteriorly they expand again to meet the broad anterior border of the frontals. In front of the pair of rugose elevations which supported the horns the nasals narrow rapidly and are directed downward and forward. The occipital crest is deeply emarginate and overhangs the occipital condyles. The zygomatic arches are rather slender. The post-tympanic and post-glenoid processes are in contact but not coössified. The anterior opening of the posterior nares is situated just behind the posterior border of the molar one. Of the teeth only the molars and premolars are preserved in the type specimen: they are of moderate size. The premolar one is a strong, well developed tooth; the other teeth gradually increase in size from before backward. The dorsum is very flat with no suggestion of a median costa. There is a basal ridge on the dorsum of the true molars, but not on the premolars. The median sinus is shallow, especially in the premolars and molar one; it is obstructed by only faint rudiments of the crochet and anticrochet. The anterior and posterior valla are shallow. There is a cingulum on the inner border of the premolars only.

The remains of Diceratherium so far found in the White River are from the upper Oreodon beds (Protoceras beds of Wortman). The discovery of Diceratherium in these beds may be regarded as additional evidence in favor of Wortman's opinion that the top of the White River is the equivalent of the base of the John Day.

J. B. HATCHER.

ECONOMIC GEOLOGY OF THE UNITED STATES: REPLY TO DR. PENROSE'S REVIEW. It is not a very dignified proceeding for an author to reply to a review of one of his own works; but there are times when dignity must be sacrificed in order to place the truth before the public. It seems to me that one of these occasions has been created by Prof. Penrose's review of my Economic Geology of the United States which appeared in the February-March number of the Journal of Geology. This review, which occupies six pages of the magazine, finds the book wholly bad, and so inaccurate that not a word of praise can be found except for the "publisher's work," the "good language," and "the general scheme in the arrangement of the subject matter," which he says is "logical."

At first sight, the volume and virulence of the attack led me to infer that many vital errors had been found: the reviewer says that these "are only a few of the many that might be mentioned," like the school boy who found the things he was writing about "too numerous to mention." But, upon rereading it and boiling it down to the actual errors, these are found to be very few, and hardly sufficient in number to utterly condemn the work. On still further examining these the astonishing fact is revealed that all but two and possibly three, are errors of the reviewer! The purpose of this reply is to point out these errors.

As if to crush me at the very start, Prof. Penrose devotes an entire page to a discussion of my use of the term "ore," the implied conclusion of which is that the author of an Economic Geology does not know what an ore is. He quotes my definition and remarks that it should have been qualified. Forthwith he gives, among others, the very qualification (biotite) which I do give just five lines below the sentence quoted. He tells us that many ores are common rocks; but the Century Dictionary, in its definition of ore, written by a well known geologist, says: "A mixture of a native metal with rock or vein-stone is not usually called ore." The rock is gangue. "The term 'ore,'" he says, "has no scientific significance whatever," in refutation of my statement that it has. Had Dr. Penrose studied petrography he would probably not need to be told that the term ore, as I used it, is to be found in Rosenbusch's publications, and, in English, in Teall's British Petrography, p. 52. Thus one page of criticism, and the one upon which most energy is devoted, depends rather upon the reviewer's misconceptions than upon the author's inaccuracies. On the next page there is a very curious criticism and one that is extraordinarily unfair. He takes me to task for *not* saying just what I *do* say; as is shown by his own quotation from my book. I say that the silicates are of *little* importance as ores, and he quotes