usually ascribed—such as crystallization, pressure acting on concretions in the process of formation, or chemical deposition of sediment—will ever explain the points of structure and other characters seen *in the specimens that I have selected for description.*

HUNTERIAN MUSEUM, JOHN YOUNG.
UNIVERSITY, GLASGOW, *Jan. 5th,* 1886.

ON A NEW PERISSODACTYLE UNGULATE FROM WYOMING.

SIR,—In the GEOLOGICAL MAGAZINE for February, 1886, it is stated, p. 50, that no Perissodactyle mammal was known "to possess tubercular teeth." Professor Cope does not supply the characters to which his term 'tubercular' is applicable. If he would kindly refer to p. 362 of my "Palæontology" (2nd ed. 1861), enlarged views of the molars of both jaws of a genus of Perissodactyles (*Pliolophus*), from Eocene, will be found. A still earlier example of 'tubercular' molars, in the genus *Hyracotherium*, is described and figured in "British Fossil Mammals and Birds," 8vo., 1846, p. 422, cut 166: also from the 'London Clay.'

Permit me to add that my estimate of the claims of Elephants and Mastodonts to rank as an 'Order' rests upon the multilamellate structure, size and succession of their 'grinders,' subordinate to which dental character may be cited a vertebral one, necessitating their special instrument the proboscis. The pentadactyle character is common to *Proboscidia* with many Rodent genera, as well as with the older Eocene members of the Coryphodont family, characterized by Lophiodontoid modifications of the true molars. These teeth afford the truest indications of affinity in the Ungulate series. The diminutive Rhinocerontoid represented by the genus *Hyrax* as little determines by molar characters an ordinal distinction form *Acerotherium* as do the modifications of teeth and limbs in *Bradypus* support an ordinal distinction in the Megatherioid family.

RICHARD OWEN.

THE "ALASKA GLACIER."

SIR,—In reference to the description of the *Great Glacier* in *Alaska,* in "*Nature*" *(Jan. 28th, 1886), I* may *draw attention to* the letter of Mr. J. Melvin in the same number, which would appear to throw light on the subject of the progressive changes in it. The *ridges* delineated in the diagram of the Glacier as lying between the body of the Ice and the hill-side would seem to be analogous to the *Parallel Roads* in Norway valleys, only they are formed on the flat instead of the slope.

The body of the Glacier seems evidently to have *contracted itself* in consequence of loss of substance by melting underneath, and withdrawn itself by *these decided starts* from the hill-side, and left the ridges as relics of its foundations on the bottom of the valley.

Probably the Glacier ages ago was *quite flat* on the top, and reached across to the top of the morainic slope on the hill-side, and it has since lost great bulk below by *ground melting,* which by overstretching has caused the cracks or *crevasses* on the upper surface by consequence of change of shape from the level to the convex.

The *tunnel*, opening out at the butt of the Glacier on to the sea-beach, has doubtless been the main *outlet* for the *ground melting*, and its arched shape may also be deemed significant of the process of convexity adopted by the contraction of the Glacier from side to side.

The mechanism may be likened to the *curling in of the sides* of a piece of wood or paper when the flat side is exposed to the fire,—and it would be all the greater if the other surface were *damped*, just as the upper surface of the Glacier would be by the rainfall or snowfall of the season. Mr. Melvin's explanation of the formation of the *Parallel Roads* in Norway valleys may therefore be provisionally proposed to be applied to the phenomena of *other Glacier actions*, but there are many of these probably that have not convex roofs, nor ground tunnels like the Alaska Glacier. W. J. Black.

United Service Club, Edinburgh, *February*, 1886.

EDESTUS AND *PELECOPTERUS*, ETC.

Sir,—I observe in your interesting article on the *Edestus Davisii*, in the January Number of the Geological Magazine, that you refer to the genus *Pelecopterus*, Cope, as identical with *Ptychodus*, Agass.; the pectoral spines representing the former being supposed to belong to the animal whose teeth have given origin to the second name.

My studies of these fishes have led me to entertain a different opinion from the above. *Ptychodus*, being a shark, is not likely to have a pectoral arch and fin like that of *Pelecopterus*. Moreover, these pectoral spines have been frequently found associated with the jaws and teeth of the "snout-fishes" of the Kansas Chalk, which have been described under the generic head of *Erisichthe*, Cope. Several species are known (see Bulletin U.S. Geol. Survey Terrs. iii. 1877), and one of them is probably the *Xiphias Dixoni* of Agassiz, from the Chalk of Sussex, England. These genera cannot be referred to any of the existing orders of fishes, on account of the peculiar structure of the pectoral arch. I have therefore placed them in an especial one, the *Actinopteri* (see Proceedings Amer. Assoc. Adv. Science, 1877(78), p. 299). E. D. Cope.

Philadelphia, *Jan.* 26, 1886.

NOTE ON THE ABOVE, BY MR. W. DAVIES, F.G.S.

Professor Cope is, I think, mistaken in assigning *Xiphias Dixoni* to Agassiz. The name first appears in a paper by Dr. Leidy "On *Saurocephalus* and its Allies," in the Trans. Am. Phil. Soc. vol. xi. p. 91, where the name was given to the prolonged ethmoid bone referred by Sir Philip Egerton to *Saurocephalus lanciformis*, as then understood.

In that paper Dr. Leidy proves that the teeth assigned by Agassiz to the *Saurocephalus* of Harlan had no relation to that genus, and he refers the jaws and teeth from the English Chalk to a new genus; under the name of *Protosphyræna*, Leidy. The "rostral" bones described by Sir Philip Egerton, he contended did not belong to