PYROXENE AND SERPENTINE IN ASSOCIATION WITH EOZOÖN CANADENSE.

SIR,—I fear that in my short notice of the rock containing Eozoön at Côte St. Pierre, which was printed in last year's Volume (p. 292), I must have failed in clearness of expression, since my friend Sir William Dawson, in his interesting defence of "the animal nature of Eozoön," says (p. 505) there "seems to be no good evidence that any portion of the pyroxene has been changed into serpentine." But of that, as I endeavoured to intimate on parts of pages 297 and 298, I have as good evidence as is possible. My slices show every stage from an unaltered pyroxene (allied to malacolite) to serpentine. In one slice, where the "canal-system" is well preserved, a few residual bits of pyroxene remain among the serpentine; in all the close resemblance of the silicates indicates an identity of the origin, which can be proved in the case of some. His suggestion that the pyroxene may have originated from local showers of volcanic dust seems to me not very probable. Grains or crystals of pyroxene are, no doubt, ejected in fair abundance from certain volcanoes, but in company with basaltic scoriæ. It is difficult to understand how the latter could be sifted from the former, and if this has not been done, what has become of the abundant aluminous silicate? True, there is a little white mica in the crystalline limestone, but not enough to represent the ash even of a Limburgite. Moreover, I believe the augite of a basalt is generally the aluminous variety. Perhaps, however, he would appeal to an eruptive peridotite. Here almost all the material would ultimately produce serpentine; but, then, volcanoes discharging only olivine augite slag are extremely rare; indeed, I should hardly like to say as yet, notwithstanding Kimberley, that their existence has been proved.

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SWEDISH GRAPTOLITES.

SIR,—The November Number of the GEOLOGICAL MAGAZINE contains the conclusion of an English translation of Dr. G. Holm's paper "On *Didymograptus*, *Tetragraptus*, and *Phyllograptus*," upon which I trust you will allow me to make the following remarks:—

Speaking of *Isograptus gibberulus*, Nich., sp. (or, as he prefers to term it, *Didymograptus gibberulus*), Dr. Holm quotes a previous paper of mine, in which I have treated of this matter. In that paper I stated in the very beginning, in direct terms, that the fossil in question has two stipes. Further on a sicular appendage is mentioned which, at a long distance from the sicula, is not inconsiderably widening.

Now we have to remark that Hall (in his "Graptolites of the Quebec Group") has figured some specimens of *Tetragraptus Bigsbyi*, Hall, so placed on the slab that two stipes are wholly visible, while you can only see the profile of a third. Such a stipe affords some very remote resemblance to the appendage described, and in order to avoid the suspicion that my observations had been based upon specimens preserved in a similar manner, I have appended in a footnote this remark: "Since this dilatation (of the