

CORRESPONDENCE.

NOTES ON CHELONIA.

SIR,—In the interesting “Notes on Chelonia from the Purbeck, Wealden, and London-clay,” by Messrs. Lydekker and Boulenger, in the May Number of this MAGAZINE, the authors refer to the generic identity of the plastron named by Prof. Sir R. Owen *Platemys Bullockii*, supposed to have been obtained from the London-clay at Sheppey, and the plastra of the same author’s genus *Pleurosternon* from the Purbecks. In regard to which will you allow me to state, that when arranging the fossil Chelonia, some fourteen or fifteen years ago, in the Museum cases at Bloomsbury, I observed that the structural characters of the plastra of *Platemys Bullockii* and of *Pleurosternon* were the same, and that the two genera must be merged into one. This conclusion was further confirmed by a closer examination of the matrix adherent to the former, which proved it to have been derived from the Purbecks, and not as stated from the London clay. The specimen has ever since been exhibited in the Museum cases with the following label attached, “*Pleurosternon (Platemys) Bullockii*, Owen, Purbeck beds, Swanage.”

Though the locality is not positively known, there can be little doubt that the specimen was found in the “Isle” of Purbeck, and in the neighbourhood of Swanage. Prof. Rüttimeyer’s remarks upon the same subject were, I am sorry to admit, unknown to me until very recently.

WM. DAVIES.

THE LIZARD SERPENTINES.

SIR,—It appeared to me that, in regard to the existence of felspar in the Rill serpentine,¹ lately in dispute between Mr. Teall and myself, the evidence of a chemical analysis of the rock would do much to clear up the question. Through the kindness of Dr. S. Rideal, a partial analysis of this serpentine has been made in the Chemical Laboratory at University College with the following results in two cases :—

	I.	II.
SiO ₂	42.70	42.63
Al ₂ O ₃	14.79	14.05
Fe ₂ O ₃	8.77	8.55
CaO	3.05	3.22
MgO	17.08	18.68
	86.39	87.13

The water, alkalis, etc., were not estimated, as I had said that probably the silica, alumina, and magnesia would suffice for my purpose. At first sight this analysis appears conclusive in favour of Mr. Teall’s contention, that there is felspar in the rock. It is the analysis of a picrite, so far as such a variable rock can be said to have a typical analysis. Indeed, the proportion of alumina is large even for a picrite. But I still feel perplexed, for on consideration of the analysis it appears to me to “prove too much.” Suppose the alumina all present in the felspar, and that to be anorthite; for

¹ See Geol. Mag. Feb. 1887, p. 69, and March, 1887, p. 137.

rough calculations take the alumina as 14 per cent., and use the proportions given by Nicol in his *Mineralogy*: then there will be in anorthite $\frac{4}{3} \times 14$ of silica, and $\frac{2}{3} \times 14$ of lime, i. e. the amounts of silica and of lime in the felspar will be nearly 16.3 and 7.6 respectively. But the amount of CaO in the analyses is only 3.05 or 3.22. Moreover, the total of the constituents in the anorthite would be nearly 37; or more than a third of the rock would be felspar, which is certainly far too much for any slide that I have seen. If the amount be calculated from the lime, 5.5 of the alumina would be needed, and 6.5 of the silica, and the felspar would be 26 per cent. of the rock,—still too much, and there would be 8.5 of the alumina left. In both these cases also there is not magnesia enough for the remaining silica, if, as seems certain, another principal constituent has been olivine. Suppose, however, the felspar be labradorite; then, calculating in the same way, and supposing all the lime to be a constituent of that mineral, we require 8 per cent. of the alumina, leaving 6 per cent., so that the rock should be rather rich in such a mineral as spinel, which it is not. In this case also the proportionate amount of felspar seems considerably in excess of the amount of the mineral which has been claimed. I have made various other trial calculations from the analysis, and in no case can I obtain results which seem to accord with the microscopic structure of the rock, even in matters on which I believe we should be in agreement.

I may indeed add that I have more than once found a similar apparent discrepancy between the microscopic and the chemical analysis of a picrite, and had reason to suspect that the alumina was mainly present as the constituent of a mineral other than felspar. So, notwithstanding the apparently conclusive evidence of the chemical analysis, on which I frankly admit Mr. Teall is entitled to claim a verdict in his favour, I still feel very strongly the difficulties as to the identification of the mineral alleged in my former communication, and am not sure that the question is even yet decided beyond all appeal.

T. G. BONNEY.

THE BAGSHOT SANDS.

SIR,—I do not think Mr. R. S. Herries (*GEOL. MAG.* April, 1887, p. 192) has found such a 'mare's nest' as he seems to imagine. The note he has quoted from vol. iv. of the *Memoirs of the Geological Survey*, of a pebble-bed somewhere near Barkham, has long been familiar to me; but I have never succeeded in finding *the* pit to which the description would apply. Short of the identification of the pit, which I have described in my paper in the *GEOL. MAG.* for March last, by the original writer of the note quoted, I cannot admit its application to the case in question. If the author of that note is prepared to vouch for the supposed identification, the inaccuracy of the description will go far to vitiate the evidence of similar notes from the same source. I leave my critics to choose between the horns of this dilemma.

In speaking of an "unmapped outlier," it was simply intended to imply that the beds under consideration *had not been mapped out*