

CORRESPONDENCE.

PRE-PALÆOLITHIC FLINT IMPLEMENTS.

SIR,—Mr. Hazzledine Warren and I evidently differ very widely on the question of man's antiquity. He expresses the opinion that the more our knowledge grows of the various ways in which a flint fractures, the less faith will archæologists have in the human origin of pre-Palæolithic flints; while I believe with equal steadfastness that the very reverse will be the case. Now, I am sure Mr. Warren is an earnest seeker after truth, and I hope I am also. Yet we disagree absolutely as to the correct interpretation of the evidence bearing upon this matter which has been collected, and it seems to me that it would be as well to attempt to put our respective opinions to a somewhat stringent test, and to ascertain, in fact, which of us knows most about flint fracture. Such a test will naturally remove this controversy from the realm of theoretical discussion to that of practical demonstration; but it is necessary to do this if any real advance is to be made in our knowledge of the subject, and I therefore submit the following proposals to Mr. Warren, which I hope he will seriously consider, and make known through the medium of your journal whether he accepts them or not. I take it Mr. Warren believes that the edge-trimmed flints, found chiefly in the Plateau Drift of Kent and usually described as 'eoliths', have been produced by some form of pressure. I, on the other hand, regard these specimens as having been flaked by blows, and I also believe that it is possible to differentiate between pressure and percussion flaking. I therefore propose that Mr. Warren selects forty flint pebbles, and that he flakes twenty of them by means of a hammer-stone of some sort into the usual hollow-scraper type of 'eolith', and subjects the remaining twenty to any form of pressure he likes which will also produce similar forms. Having done this, I would suggest he puts distinguishing and faithful marks upon each, by means of which he will know which have been flaked by pressure and which by blows, and that these specimens be then submitted to my examination at a meeting of some scientific body such as the Geological Society. If this is done, and if a good light is provided, I will then and there examine the forty flints and state which I consider have been flaked by pressure and which by blows, and further, if I do not judge 75 per cent of them correctly, I will then and there admit that my claim to be able to differentiate between the two forms of fracture is not substantiated.

It will be noticed I refer only to the simple edge-trimmed tabular flints first discovered by Mr. Benjamin Harrison, of Kent, and make no mention of the much more elaborately flaked specimens which have been found beneath the Red Crag of Suffolk. These form an entirely different subject of inquiry, and can be dealt with when the easier question of the 'eoliths' is settled. But if it turns out that I am vanquished in the contest I suggest, my views regarding the 'humanity' of the sub-Crag flints will naturally lose prestige, while if I should happen to be the victor it will show I am in possession of

certain knowledge which enables me to say with a high degree of certainty whether a flint has been fractured by blows or by pressure, and that in consequence these views have received definite and solid support. I hope Mr. Warren will agree to accept these proposals, and that the result of my examination of the flints to be fractured shall appear in the pages of this journal.

J. REID MOIR.

CONCERNING LATERITE IN GUIANA.

SIR,—In 1911 I contributed an article to this Magazine entitled "What is Laterite?" which arose from a discussion in these pages, initiated by a review of Professor J. B. Harrison's work, *The Geology of the Goldfields of British Guiana* (1908). In this article I put forward a tentative system of classification of lateritic products, by which I proposed to test the use of the word *laterite* by certain authors. Amongst the work criticized was a paper by Professor Harrison entitled "The Residual Earths of British Guiana commonly termed 'Laterite'", in the *Geol. Mag.*, 1910, pp. 439–52, 488–95, 553–62, and also that of Du Bois entitled "Beitrag zur Kenntniss der Surinamischen Laterite", published in *Tschermak's Mittheilungen*, 1903. I drew the conclusion (*loc. cit.*, pp. 563–4), judging from the work of Harrison and Du Bois, that the term has been too widely used in the Guianas.

Last year I received from Professor Harrison a letter to which, owing to the distractions of furlough and travel, I have not been able, hitherto, to give the careful consideration it deserves. From Professor Harrison's letter it appears that my conclusion given above is too sweeping, and therefore in justice to Professor Harrison I am making this communication.

I cannot do better than quote a section of this letter:—

"With reference to the various points in my published papers noticed by you I may mention that I had not an opportunity of correcting the proofs, and hence there are in the papers some wordings which would have been amended if I had had such an opportunity; the copies I send you have been so corrected. Among them is the heading to Table I, on p. 441.¹ The object of that table is to illustrate the somewhat diverse nature of *sedentary* soils covering areas of aluminous laterite. This is clearly seen by reference to the last sentence of p. 440. Unfortunately, in copying the analyses, the word 'Ironstone' over the word 'gravel' in the fourth column of the table was omitted.

"During 1897–1902 I analysed several specimens of 'ironstone gravels' and found them to contain from 80 to as much as 95 per cent of iron and aluminum hydrates, principally the former. These bring up the lateritic constituents of some of these soils very materially, for instance:—

	$\text{Fe}_2\text{O}_3 + \text{Al}_2\text{O}_3$
Hiamaraka Hill soil	72 per cent
Arakaka	56 "
Konawaruk Road, 12 miles	33 "
" " 14½ "	55 "
Woopu	72 "
Issorora	65 "
Malali	62 "

¹ Which Professor Harrison corrects from "Analyses of Laterite Soils" to "Analyses of Soils on Laterite".