

evidently more or less fragmentary, but many of them are continuous over lengths of nine or ten feet; and in places they run in different directions, and occasionally cross one another.

The track-like aspect of these impressions is so striking, that any attempt to cast doubt on their animal origin may seem altogether futile. The fact that no crustacean remains (or other vestiges of animals by which they could have been produced) have been discovered in connection with them, is, of course, of no moment: as undoubted foot-tracks of reptiles and birds occur in the Connecticut Valley, and elsewhere, under similar circumstances. There is one point, nevertheless, and I think a strong point, which militates against their animal origin. The lateral indentations or supposed feet-impressions vary in number, as regards their grouping, in different "tracks," thus forcing Professor Owen to establish no less than four distinct species: *Protichnites multinotatus*, *P. octonotatus*, *P. septemnotatus*, and *P. alternans*, with a provisional species, *P. lineatus*, to include the track without lateral pit-marks.* The association of so many different species, if the supposed tracks be really of animal origin, is at least a very remarkable circumstance: one, indeed, that might cause doubt in unprejudiced minds as to the real nature of these impressions. But, if not the tracks of crustaceans or other animals, to what, it may be asked, can these impressions be due? I would suggest, but with all due apology for the heresy of the suggestion, that they may be nothing more than the impressions of large fucoids. Many of the existing *Melanospermæ* grow to a great length: and in many genera with flattened or riband-like fronds there is a well-defined midrib, sufficiently hard to make a distinct indentation when the frond is pressed on damp sand. The lateral indentations of our Potsdam impressions may have been made by groups of spores or sori arranged (as seen in many existing forms) along the sides of the frond. If it be said that the sori in existing fucoids could scarcely accomplish this, it would not be more unreasonable to infer that in these ancient sea-weeds the spores were of a somewhat harder or denser nature, than to have to admit with Professor Owen that the

* It may perhaps be urged that these species collectively are only intended to be provisional: the names applying not to the animals, but simply, as terms of convenience, to the "tracks." But if some of these impressions were really made by a crustacean with seven pairs of feet, whilst others were made by crustaceans having eight pairs, &c., they must certainly have been made by distinct, even if by closely related, species: using the term species in its conventional or commonly understood sense. In the crustacea, and indeed throughout the animal series generally, the number of the feet or legs, as a distinctive character, is especially definite.