

ratteri secondari, per la speciale loro conformazione esterna, riguardante soprattutto la forma depressa, il grande sviluppo della suola pedale, la ristretta cavità pleuropodiale dell' una, e la forma rigonfia, la rudimentazione della suola pedale, e l'ampia cavità pleuropodiale dell' altro: dipendenti probabilmente, come ne espressi l'idea nel 1893, da un maggiore adattamento dell' una a strisciare, dell' altro a nuotare a mo' dei Cefalopodi.

Queste le conclusioni a cui sembra si possa pervenire, per ora, sui pochi dati anatomici che si hanno sul gen. *Phyllaplysia*, nella speranza che fra breve nuove ricerche, fondate su copioso materiale, possano gettare maggior luce sull' argomento.

Milano, Museo Civico di Storia Naturale, 8 maggio 1901.

#### 4. Phylogenetic Relationship between Amphineura and Cephalopoda.

By J. Graham Kerr, Cambridge.

eingeg. 15. Mai 1901.

In the last number of Spengel's Zool. Jahrbücher (Supplement V. Band 2. Heft 2) which has just reached Cambridge, Prof. Dr. L. Plate publishes the concluding portion of his admirable work upon the anatomy of the chitons, marking the completion of a work upon which I feel sure older and better known Zoologists will congratulate Prof. Plate as heartily as I do myself.

Pages 559—561<sup>1</sup> I find devoted to destructive criticism of what purport to be views expressed by me as to the genetic relationship between the Amphineura and Cephalopoda, but which through some unfortunate misapprehension so completely misrepresents my view upon what is an important morphological question that I feel bound to correct it at once.

I am in fact made by Prof. Plate to express the belief that the Cephalopods are descended from ancestors resembling Chitons.

Now at the time when I wrote the paper under review<sup>2</sup> I held most strongly, as I hold still, that it is quite unjustifiable to attempt to derive any living group of animals from any other living group. Such an attempt involves necessarily the view that the supposed ancestral group has remained completely unaffected by all evolution-producing agencies through vast periods of time — from the epoch when the younger group split off from it until the present time.

<sup>1</sup> cf. also on p. 583. : »Ebenso wenig können die Cephalopoden, wie Kerr und Haller wollen, als ein Seitenzweig chitonartiger Vorfahren aufgefaßt werden.«

<sup>2</sup> On some points in the anatomy of *Nautilus pompilius*. Proc. Zool. Soc. 1895. p. 664.

Such an idea does not enter into my philosophy as a possibility let alone a probability.

What I actually said was as follows »from its archaic character *Nautilus* might be expected to give valuable hints as to the phylogenetic relationships of the group to which it belongs. Upon the whole it appears to me that its structure affords strong evidence that the nearest living allies of the Cephalopoda are to be found in the Amphineura. And amongst these it is interesting to note that it is the Chitons in which the points of resemblance are most striking as they are apparently the oldest and most primitive members of the group« (P.Z.S. 1895. p. 683).

And again:

»*Nautilus* shows many strong resemblances to the *Amphineura* and it is probably amongst these latter that we have to look for the nearest allies of the Cephalopoda« (op. cit. p. 686).

It will, I think, be quite clear from these quotations that the view expressed in 1895 was merely that the Cephalopoda are more nearly allied to the Amphineura than they are to any other subdivision of the mollusca, in other words, that the ancestral group common to the two groups was probably more recent than that common to either of them and any other group of molluscs. This, as will be seen, is very different from believing that one group is actually derived from the other, and in fact it goes but little further than does Prof. Plate himself, who allows that the Chitons and the Cephalopods »auf dieselbe Wurzel sich zurückführen lassen«.

My object is now merely to correct an erroneous impression conveyed by Prof. Plate's criticism and I do not venture to criticise his real arguments, which coming from him must naturally be given the greatest weight. In regard to one point, however, I should like to make a few remarks.

Prof. Plate criticises in turn each of the points of resemblance brought forward by me between *Nautilus* and *Chiton* and shows how each in turn is quite inadequate to justify the assumption of close genetic connection between the two forms. In regard to this I agree absolutely with Prof. Plate that each of these resemblances taken by itself is of no special account: I might go further and say that I believe no isolated resemblances however striking can be of value upon which to rest theories of affinity: when on the other hand there occur, say half a dozen points of resemblance, in deep seated morphological features without any apparent adaptive relations to conditions of existence, between two types then I believe that taken all together they do constitute important evidence of genetic relationship.

Cambridge, May 12.

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