

arrangement of *Balanoglossus* amongst the Chordata, appears to be quite as justifiable as the elevation of the Urochorda to their new dignity in zoological classification.

There is, however, a great difference between looking at *Balanoglossus* as a low type amongst the Chordata (in which I fully agree with Bateson) and rejecting the significance of the Nemertean type as one of transition in the way above indicated.

There is no doubt that the Nemertea represent a more primitive phase than the Enteropneusta (Hemichorda). They have no enterocoele, and they have no gill-slits; but their nervous system shows certain unexpected analogies with that of the higher Chordata of more intrinsic value than those that obtain between *Balanoglossus* and the Chordata in general. Also for the important question, which is so vital in any consideration of the ancestry of the Vertebrates, viz., the origin of metameric segmentation, it appears to me that the Nemertea offer points very worthy of consideration. The question of the proboscis and its sheath, as comparable to hypophysis and notochord, was fully treated by me in another paper, and will here only be very briefly touched upon. In my opinion, this comparison is all the more forced upon us, now that in other respects (nervous system, &c.) new evidence of genetic relationship is here brought forward.

The first point I wish to consider is that of metameric segmentation. It has been specially treated of late years by various authors of renown, with whom I do not wish to enter at this moment into any lengthy controversy, but will briefly state what may be gathered for the theory in general, from a careful consideration of the incipient metamery of the Nemertea.

If we start from a more or less radiate ancestor of the earliest diploblastic type, in which neither a radial nor a serial repetition of organs or organ systems has yet come about, and which may indifferently be considered to resemble either a more flattened *Trichoplax* or a more spherical *gastrula*, we may assume that in the course of the development of other internal organs (towards the formation of which the secondary accumulation of cells between the two primary layers often so largely contributes) the radial symmetry may either be further accentuated or may be replaced by a tendency towards bilateral symmetry. In the latter case we are inclined to ascribe the first impulse towards this bilateral symmetry to a preference, which slowly establishes itself in the animal mechanism, for moving in one direction rather than in any other, *i.e.*, for generally stretching forward, when moving about, one particular portion of the body.

One impulse of this sort will suffice to lead us to understand, or rather to deduce, a very considerable number of consequences, which cannot fail to make their appearance under the influence of natural selection acting upon the organisms that have inherited this tendency in different degrees. Thus we may understand the narrowing and lengthening of an animal that moves in one direction in preference to any other; and similarly the development in the nervous system of a centralisation not far away from the anterior extremity.