

disk, is "upwards;" towards the mouth, "downwards;" horizontally, towards the points of the arms, "outwards;" and horizontally, towards the mouth, "inwards."

Some readers may take it amiss that I have omitted to present any tree-like diagrams, setting forth the descent of these two families from others of the animal kingdom. I am not unaware that distinguished naturalists have formed a sort of zoological herald's college, whence have emanated a great number of genealogical trees, intended to show the exact descent and relationship of certain animals. These pedigrees would be most useful, were it not for the absence of some thousands of essential ancestors whose whereabouts is unknown, or even unknowable. Feeling quite unable to say what are the precise relationships among Brittle-stars, I have, nevertheless, tried to place the genera in such order, and to give such notes on them, as would show their resemblances and their differences. To push the statement further seems, in the present state of knowledge, unprofitable. It is the less important to be precise, because the several theories of evolution which more or less depend on such genealogical trees, or pedigrees, have an interest almost wholly historical, and hardly at all philosophical. That is to say, they treat of the sequence of facts and not of their reason.

So far as philosophy is concerned, all the excitement of our day over these theories is uncalled for. There prevails, indeed, a vague impression that they explain something, whereas they explain nothing. They only assert, more or less dogmatically, that certain events happened, in a certain order; just as there used to be a theory that the leaning tower of Pisa was built leaning. There also was a theory that it was built straight, and that it settled afterwards. Neither explained the tower, and both assumed that masons built it; but one asserted that the courses were laid slanting, the other that they were laid horizontally.

Theories of evolution, considered from their legitimate stand-point (viz., the historical), have always this trouble, they make their machine do more than it can do. Their auger goes on boring round holes till the opportune moment, and then suddenly it bores a square hole. For example, the best research goes to demonstrate that there can be no vital growth without an egg, or a seed, at the first stage. Air filtered or strongly heated produces no life. Now, it is agreed that the earth was once too hot to permit organic material. Whence, therefore, came the first egg, seed, or germ? Several attempts have been made by evolutionists to jump this insurmountable fence. One has suggested that the first germ came from a fortuitous collection of atoms; but in positive science nothing is fortuitous, and neither in physics nor in metaphysics is such a thing as an atom provable.

The so-called theory of separate or special creation has, in like manner, an interest purely historical. There is as much special creation in evolution as in any other history of growth and no more. The moment a type varies, there must be special