

reconstruction of the fossil fragments, so the recognition of extinct forms aided in the arrangement of their living successors, filling up some of the morphological gaps.

(4) The work of Cuvier must always be associated with the idea of the "correlation of parts"—that the organism is a morphological unity. Certain characters are invariably correlated, others as invariably exclude one another; in short, the part is of a piece with the whole.

The anatomical and palæontological foundations of classification were recognized by Cuvier, but there is a third foundation, namely in embryology. It seems fair to credit Von Baer (1792-1876) with laying this third foundation, not so much because he confirmed on embryological grounds the four *embranchements* of Cuvier—which was a mistake in detail—but because he saw clearly that the study of development was a sure clue to relationship. We find the same idea in the work of Johannes Müller (1801-1858), whose genius influenced almost every department of zoology; in Vaughan Thompson's discovery of the Crustacean nature of Barnacles; and conspicuously in Kowalewsky's account of the development of Ascidians and the lancelet (1866).

Recognition
of the Em-
bryological
Basis.

The pedigree of a noble stock, and the relationships between the different branches of the family, may be conveniently represented by a number of diverging and forking lines, and these may readily assume a more or less artistic tree-like arrangement, which has certainly the merit of vividness.

Genealogical
Trees.

It is certain that, before the Theory of Descent was accepted or even discussed, genealogical trees were used to represent possible relationships among human races, or possible affinities among animals. It was used as a "graphic" way of expressing classification, and was true just in proportion as the classification was true. The naturalist-traveller Peter Pallas was one of the first to use it to express affinities among animals, though it is possible he saw a deeper meaning in his symbol.

But when the Theory of Descent took hold on men's minds, the genealogical tree became more than a graphic