

us the normal stages of development, which are concealed and hurried through or suppressed in most other insects. In ordinary metamorphoses, the parts and organs appear to become changed into the corresponding parts in the next stage of development; but there is another form of development, which has been called by Professor Owen metagenesis. In this case "the new parts are not moulded upon the inner "surface of the old ones. The plastic force has changed its "course of operation. The outer case, and all that gave form "and character to the precedent individual, perish and are "cast off; they are not changed into the corresponding parts "of the new individual. These are due to a new and distinct "developmental process," &c.²⁹ Metamorphosis, however, graduates so insensibly into metagenesis, that the two processes cannot be distinctly separated. For instance, in the last change which Cirripedes undergo, the alimentary canal and some other organs are moulded on pre-existing parts; but the eyes of the old and the young animal are developed in entirely different parts of the body; the tips of the mature limbs are formed within the larval limbs, and may be said to be metamorphosed from them; but their basal portions and the whole thorax are developed in a plane at right angles to the larval limbs and thorax; and this may be called metagenesis. The metagenetic process is carried to an extreme point in the development of some Echinoderms, for the animal in the second stage of development is formed almost like a bud within the animal of the first stage, the latter being then cast off like an old vestment, yet sometimes maintaining for a short period an independent vitality.³⁰

If, instead of a single individual, several were to be thus developed metagenetically within a pre-existing form, the process would be called one of alternate generation. The young thus developed may either closely resemble the encasing

²⁹ 'Parthenogenesis,' 1849, pp. 25, 26. Prof. Huxley has some excellent remarks ('Medical Times,' 1856, p. 637) on this subject in reference to the development of star-fishes, and shows how curiously metamorphosis

graduates into gemmation or zoid-formation, which is in fact the same as metagenesis.

³⁰ Prof. J. Reay Greene, in Günther's 'Record of Zoolog. Lit.,' 1865, p. 625.