

tion is also expressed by Spinoza and Hume, by Lessing and Schelling, and by Kant and Herder. And Hegel was nothing if not an evolutionist.

The title "Speculative Evolutionists" is borrowed from Prof. Osborn's history, to include a variety of writers who yielded to the vice of unverified speculation. Speculative
Evolutionists.

We need not go further back than Benoît de Maillet (1656-1738), the author of *Telliamed*. He believed in the rapid transformation of organisms by changed surroundings and habits, and in the transmission of the resulting modifications, but he discounted even his premonition of Lamarckism by deriving birds from flying-fishes and man from the mermaid's husband.

Of greater interest are the suggestions of the mathematician Maupertuis (1698-1759). He distinctly stated a pangenetic theory of heredity, as in the words "The elementary particles which form the embryo are each drawn from the corresponding structure in the parent, and conserve a sort of recollection of their previous form, so that in the offspring they will reflect and reproduce a resemblance to the parents". He supposed that fortuitous variations might arise by the diversified arrangement of the elementary particles, and anticipated an even more modern doctrine in the suggestion that new species might be physiologically isolated by being sterile with other members of the stock.

Diderot (1713-1784) proposed a theory of gradual development from pre-existent germs, and, as Mr. Morley and Prof. Osborn point out, revived the idea of the survival of the fittest which Empedocles had so long before suggested. It is also very interesting to find that he thought of the particles of the organism as striving through many failures to attain stable combinations,—a far-off hint of the modern conception of the struggle of parts.

Charles Bonnet (1720-1793) was driven by the failure of his eyesight from valuable observations, *e.g.* on the parthenogenesis of Aphides, to somewhat profitless speculation. He is well known as the author of the term "Evolutio", which he applied, however, not to