

At the same time, between 1871 and 1873, the pioneers of American palaeontology, Leidy, Marsh, and Cope began the exploration of our ancient lake basins rich in life. The first ten years of their work not only revolutionized our ideas of mammalian descent, but brought together the data for the generalizations of the second decade; for Marsh's demonstration of the laws of brain evolution in relation to survival; for Cope's proof of ungulate derivation from types with the simple foot resting upon the sole, and with the conic or bunodont ancestral molar tooth; and finally for Cope's demonstration of the tritubercular molar as the central type in all the mammalia. These four generalizations furnished a new working basis for morphology and phylogeny.

In these twenty years, thanks to energetic field work, we have accumulated vast materials for the history of the rise of the mammalia, enough for ten students where there is one, and the question arises: how shall we take best advantage of it, what methods shall we adopt? In this address, besides bringing before you the more recent achievements of exploration and research, I will try to illustrate the advances already made in lines of thought, observation and system in palaeontology and indicate other advances which seem to me still desirable. In the problem of how to think and work most effectively, and with most permanent results, all the sciences meet on common ground.

ADVANCES IN METHOD.

It is to the renown of the veteran Rüttimeyer and of Kowalevsky, so soon unfortunately deceased, that, while their main inductions suffer by American discoveries, their methods of thought have not been displaced. It matters little that their theory, that ungulate molars sprang from lophodont or crested forms, has been disproved; that Kowalevsky's tables of descent are full of errors; that his main generalization as to the persistence of adaptive and extinction of inadapative foot types does not hold good; that the horses and Anchitherium spring not from Palaeotherium as he supposed, but from *Pachynolophus*