

paring a great number of human skulls, he really found the mid jawbone. In some individuals it is preserved throughout a whole lifetime, but usually at an early age it coalesces with the neighbouring upper jawbone, and is therefore only to be found as an independent bone in very youthful skulls. In human embryos it can now be pointed out at any moment. In man, therefore, the mid jawbone actually exists, and to Goethe the honour is due of having first firmly established this fact, so important in many respects; and this he did while opposed by the celebrated anatomist, Peter Camper, one of the most important professional authorities. The way by which Goethe succeeded in establishing this fact is especially interesting; it is the way by which we continually advance in biological science, namely, by way of induction and deduction. *Induction* is the inference of a general law from the observation of numerous individual cases; *deduction*, on the other hand, is an inference from this general law applied to a single case which has not yet been actually observed. From the collected empirical knowledge of those days, the inductive conclusion was arrived at that all mammals had mid jawbones. Goethe drew from this the deductive conclusion, that man, whose organization was in all other respects not essentially different from mammals, must also possess this mid jawbone; and on close examination it was actually found. The deductive conclusion was confirmed and verified by experience.

Even these few remarks may serve to show the great value which we must ascribe to Goethe's biological researches. Unfortunately, most of his labours devoted to this subject are so hidden in his collected works, and his