

CHAPTER VI.

IT is amongst plants that we find the longest lived organisms, and these attain a higher age than animals, in the first place because they are less watery and therefore not easily congealed. Secondly, they contain a viscous oily substance, and therefore, although they are dry and earthy, they nevertheless possess a moisture which is not easily dried out. We must now find an explanation for the great age attained by trees. For a peculiar explanation applies to them which does not apply to animals, excepting insects. This peculiarity is that plants constantly renew themselves and so attain great age. For new shoots are put forth from time to time and others grow old. And the same thing is true of the roots. But this renewal does not take place in all parts at once; sometimes only the trunk and branches die and others grow up alongside of them. And when this happens other roots spring from the remaining part. And so it continues, one part passing out of existence and another part coming into being. Consequently, they live long. Plants have a resemblance to insects, as already said. For life continues when they are divided, and out

of one insect or plant two or several are produced. Divided insects, however, reach merely to the state of living, but are not able to continue long in life. For they have no organs, and the principle of life in the single part has no power to develop an organ. This principle in the plant, on the contrary, has the power of developing organs, for it contains in every case both root
5 and stem potentially. Consequently, the new and the ageing branch keep growing from this, differing little in their length of life, just as it is with grafts. In the grafting of shoots, one would say that in a certain sense this same process occurs, for the shoot is part of a plant. In the grafting of shoots, however, the continuity of life occurs in a state of separation from the mother plant, while in the other cases the lives are
6 conjoined. The reason is that the inherent potential principle in the plant is all-pervasive.

There is, however, a point of identity between animals and plants. In animals the males are, as a rule, longer lived than the females. For their upper parts are larger than the lower ones (the male is more dwarflike¹ than the female); the warm element is found in the upper
7 parts and cold in the lower ones. Also plants with
467 6 large roots are longer lived than the others. Annuals are not of this kind, but trees are. For the upper part and head of a plant is the root, but annuals have their main growth towards the lower² parts and the fruit.
8 These questions will be examined in detail in the treatise

¹ That is they have larger heads and shoulders.

² Viz. towards the branches, which are analogous to the lower parts of man.

On Plants.¹ For the present we have explained the cause of longevity and shortness of life in animals. There remain for our consideration the subjects of Youth and Old Age, Life and Death. And after these have been investigated, our treatise on animals² will have been finished.

¹ The two books of Aristotle (*Hist. an.* 539a 20, *De gen. an.* 716a 1), *περὶ φυτόν*, appear to have been still in existence at the time of Hermippus, but to have been finally supplanted by the completer work of Theophrastus on the same subject. Cf. Zeller, *Philosophie d. Griech.* Th. II. Abth. ii. 3te. Aufl. p. 98.

² Owing to this statement Brandis (*Handbuch d. Geschichte d. Philos.* p. 1192, 93) thinks that only the first five tractates of the *Parva naturalia* were written immediately after the *De anima*, while the three following (viz. *On Longevity and Shortness of Life*, *On Youth and Old Age*, and *On Respiration*) were written after the completion of the treatises on Zoology. There is no reason why this should not be true, although proofs from cross-references in Aristotle's writings are never very cogent for their chronology, such references being often a later addition. It frequently happens that the treatise X cites the treatise Y, and the treatise Y cites the treatise X, such additions and references (particularly when at the beginning or end of a work) being added often by an editorial hand. The *Topics*, e.g. quotes the *Analytics* (*Top.* 162a 11, 165b 8), and is quoted by the *Analytics* (*An. prot.* 24b 12, 64a 37, 65b 16).