

CHAPTER XVI

THE UNIVERSAL REQUIREMENTS OF TEACHING AND OF LEARNING ; THAT IS TO SAY, A METHOD OF TEACHING AND OF LEARNING WITH SUCH CERTAINTY THAT THE DESIRED RESULT MUST OF NECESSITY FOLLOW.

1. EXCEPTIONALLY fine is that comparison made by our Lord Jesus Christ in the gospel, "So is the kingdom of God, as if a man should cast seed upon the earth ; and should sleep and rise night and day, and the seed should spring up and grow, he knoweth not how. The earth beareth fruit of herself ; first the blade, then the ear, then the full corn in the ear. But when the fruit is ripe, straightway he putteth forth the sickle, because the harvest is come" (Mark iv. 26).

2. The Saviour here shows that it is God who operates in everything, and that nothing remains for man but to receive the seeds of instruction with a devout heart ; the processes of growth and of ripening will then continue of themselves, unperceived by him. The duty of the teachers of the young, therefore, is none other than to skilfully scatter the seeds of instruction in their minds, and to carefully water God's plants. Increase and growth will come from above.

3. Is there any who denies that sowing and planting need skill and experience ? If an unpractised gardener plant an orchard with young trees, the greater number of them die, and the few that prosper do so rather through chance than through skill. But the trained gardener goes

to work carefully, since he is well instructed, where, when, and how to act and what to leave alone, that he may meet with no failure. It is true that even an experienced man meets with failure occasionally (indeed it is scarcely possible for a man to take such careful forethought that no error can arise); but we are now discussing, not the abstract question of circumspection and chance, but the art of doing away with chance by means of circumspection.

4. Hitherto the method of instruction has been so uncertain that scarcely any one would dare to say: "In so many years I will bring this youth to such and such a point; I will educate him in such and such a way." We must therefore see if it be possible to place the art of intellectual discipline on such a firm basis that sure and certain progress may be made.

5. Since this basis can be properly laid only by assimilating the processes of art as much as possible to those of nature (as we have seen in the 15th chapter), we will follow the method of nature, taking as our example a bird hatching out its young; and, if we see with what good results gardeners, painters, and builders follow in the track of nature, we shall have to recognise that the educator of the young should follow in the same path.

6. If any think this course of action petty or commonplace, let him consider that from that which is of daily occurrence and universal notoriety and which takes place with good results in nature and in the arts (the teaching art excepted), we are seeking to deduce that which is less known and which is necessary for our present purpose. Indeed, if the facts from which we derive the principles that form the basis for our precepts are known, we can entertain hopes that our conclusions will be the more evident.

FIRST PRINCIPLE

7. *Nature observes a suitable time.*

For example: a bird that wishes to multiply its species, does not set about it in winter, when everything is stiff

with cold, nor in summer, when everything is parched and withered by the heat; nor yet in autumn, when the vital force of all creatures declines with the sun's declining rays, and a new winter with hostile mien is approaching; but in spring, when the sun brings back life and strength to all. Again, the process consists of several steps. While it is yet cold the bird conceives the eggs and warms them inside its body, where they are protected from the cold; when the air grows warmer it lays them in its nest, but does not hatch them out until the warm season comes, that the tender chicks may grow accustomed to light and warmth by degrees.

8. *Imitation.*—In the same way the gardener takes care to do nothing out of season. He does not, therefore, plant in the winter (because the sap is then in the roots, preparing to mount and nourish the plant later on); nor in summer (when the sap is already dispersed through the branches); nor in autumn (when the sap is retiring to the roots once more); but in spring, when the moisture is beginning to rise from the roots and the upper part of the plant begins to shoot. Later on, too, it is of great importance to the little tree that the right time be chosen for the various operations that are needful, such as manuring, pruning, and cutting. Even the tree itself has its proper time for putting forth shoots and blossoms, for growing, and for coming to maturity.

In the same manner the careful builder must choose the right time for cutting timber, burning bricks, laying foundations, building, and plastering walls, etc.

9. *Deviation.*—In direct opposition to this principle, a twofold error is committed in schools.

(i.) The right time for mental exercise is not chosen.

(ii.) The exercises are not properly divided, so that all advance may be made through the several stages needful, without any omission. As long as the boy is still a child he cannot be taught, because the roots of his understanding are still too deep below the surface. As soon as he becomes old, it is too late to teach him, because the intellect