

has the natural habit of observation been crushed by previous vicious training. This is one of the first evils the educator has to counteract, the next is to cradicate the habit of receiving statements on authority, and to stimulate the mind to the contrary habit of "proving all things," a scientific as well as religious duty.

As for the science teacher himself, he must be a true learner and enthusiast in his subject. He must teach what he practically knows, and this in a practical manner, so that the learner shall know it in the same way. He must, in the order of his teaching, follow nature, and not himself merely; and he must induce his pupils to observe, reason, and judge for themselves on every point, and to receive nothing either as fact or law that they cannot explain and defend. A very little of such teaching, however elementary or however popular, may be the sowing of seed that will produce abundant harvests. It is to be observed also that in this way the teaching of science must react favorably on all other kinds of teaching. It has already done so, and will do so more markedly in the time to come. When this beneficent revolution shall be complete, we may hope to see students striving for excellence, because the appetite for study has been awakened in them, because they love learning for its own sake; not turning the weary treadmill of cram for hated examinations, or learning only because it "pays" in college distinctions or in some prize or medal or opening to professional life. This millennium of education, I believe, is to be introduced only by the extension and development of education in science.

Natural science is closely connected with our æsthetic perceptions, which are of divine origin, however much

they may become distorted and aquesed. That we know the structure of a flower and can give names to its parts, is surely no reason why we should take less pleasure in its form, its colors, or its perfume. Rather it should greatly enhance our appreciation of these wonders, so attractive even to a child. That we know the structure and age of a mountain chain, or understand something of the motion of glaciers, should surely not harden our hearts against the sublimity of Alpine scenery. Rather it should fill us with new awe, in view of the time and the forces involved in the foundation of the everlasting hills. It is not too much to say that no teacher of science whose own imagination is not fired with a sense of the beauty in nature, and who fails to avail himself of the natural feeling for beauty, can be in the highest degree successful. Nay further, in addition to taking advantage of what all can see and appreciate, he must be continually bringing into view new beauties not seen by the unlearned. Such marvellous and artistic structures as the microscope disclose, in the minute parts of plants and insects and sea-urchins, in the crusts of polycystins, foraminifers, and diatoms, and in the gills of certain mollusks, are admirably fitted to enlist the interest of learners, and to enlarge their appreciation of nature. At a time when so much that is essentially monstrous is admired as art, such culture it is especially the duty of science to give; and it requires but a limited knowledge of human nature to perceive that the mind which has lost its relish for nature's beauties, and delights itself in grotesque or hideous productions of art, is thereby degraded even morally and intellectually.

Again, the instructor in science must not teach atheistically, or even be content with that provisional materialism which one of the great popular