

### *Science in Education.*

THE fact must be patent to all, that when the history of education of the nineteenth century is read, the most striking characteristic will be the sudden rise, and almost abnormal development of science study in the schools of nearly all civilized nations. It is only during the last quarter of the century that any marked effort has been put forth to bring science study within the reach of all. Up till then, most educators seemed well content to follow with comparatively little change the methods and also the subjects of tuition in vogue ever since the Renaissance. Up till about that time practically the same methods were used in many of the trades, and in agriculture, as had been practiced for a century before. When, however, physical science began to extend its influence to the arts and trades, and even to the domain of the laborer, the changed condition of social and industrial life necessitated a change also in the educational mechanism; simply because the mental development secured by mediæval studies, was not sufficient for modern requirements. It is not necessary for us here to trace the rapid steps by which this change has been effected. Suffice it to say that despite the opposition of a host of friends of the old school, the utilitarian advantages of technical knowledge has raised science study to a place of paramount importance in the system of education of all intelligent and progressive nations.

It is hard for us to read with unbiassed minds the history of modern times. Apparently we need like the artist to stand back at arm's length, to observe the *general effect* of intricate details. It is hard to make a just estimate of the effect of *any* movement, when our point of view lies close to where the movement is being enacted, And so it is difficult for us, living near the inception of modern science as a school study, to estimate its

effect on modern progress and culture. That the benefits accruing to the public at large are manifold cannot be denied. But not only has this later education brought material blessings to mankind: in blessing others, itself has been blessed. The teaching done formerly by rule of thumb, is now pursued with much greater economy of energy, according to the correct principles of the science of education and psychology. Nevertheless, while we glory in modern achievements, it might be well to look whether or not there be defects occasioned by this rapid development. It would seem that the biological law holds good in the educational world, Elaboration always proceeds upon and is sustained by Disintegration." This is the subject to which your attention is directed, namely: the drawbacks sustained and the advantages derived from such a prominence of scientific study.

In almost all of our schools and colleges where instruction in science has been provided for, provision is also made for the study of Latin, Greek and Modern language and literature. But it does not take a very careful scrutiny to see that these occupy only a subordinate position. While in most country schools, and in primary city schools the literary side is still in the pre-eminence, it is yearly becoming less so. In the colleges and universities, on the other hand, the already great preponderance of science subjects is yearly increasing, and the limits extending; so that the student of science, in order to do himself justice at the inevitable final examination, must attend to the exactions of his science curriculum, and leave literary pursuits to those whose attention is perhaps less worthily occupied. Thus there arises a very unfortunate tendency to undervalue the benefits which the older, literary education is still able to bestow.

Everyone must admit that a training in science and scientific methods fails to supply those humanizing in-