

of liberal knowledge—the useful only after the true and the beautiful.

Certainly these should be the principles which are to guide in selecting any science which we purpose teaching our scholars in literature. Astronomy, for instance, is less practical, less applicable to any industry than chemistry, but on the other hand it is better adapted to excite admiration, and to enlarge our views of the Universe, and just for this reason it ought to have a place in the programme of a liberal, and especially a literary education. But, actually, after having only very lately introduced the subject of cosmography among the studies to be taken up by the students of literature, it has been again struck out, and in the new programmes all the sciences defile one after the other, with the exception of this, and, in fact, a student of literature may pass through all his classes, without knowing the difference between a planet and a fixed star, without knowing what it is which we call a Nebula. This sudden suppression of a scientific subject by the stroke of the pen is just an example of how problematic is the pretended "necessity" of the sciences in education. Yesterday, astronomy was regarded as necessary for the completion of the pupil's course. To-day, it is chemistry and geology, which it is essential to know. It cannot be doubted that chemistry and geology are more useful, if our object is to know the organic bodies of our globe. For ourselves we should much prefer to make our young men "citizens of the world," that we should direct the attention of our children to the firmament full of stars, that we should tell them of Sirius, of Arcturus, and Aldebaran; that we should carry them in thought across immensity on the rays of those stars which have taken centuries to reach us and, unveil themselves to man, that we should make them see in the white clouds of the Pleiades, or of the Milky Way the dust of worlds, and in other nebulae, perhaps worlds in process of formation. We should also tell them how science has succeeded in penetrating the secret of the various revolutions of the stars; we should speak to them of Pythagoras, of Plato, of Aristotle, of the dream of Scipio, of Ptolemy, of Copernicus, of Galileo, of Descartes and of Newton, concentrating all the movements of the universe in a formula which one may hold in the hollow of his hand. We should, even behind the astronomical system, seek to make them understand the philoso-