

tion, such a belief will tend to heighten the enjoyment of the present. A more animating conviction, and one more consonant with the great destiny of our race, is, that the conquests already achieved constitute only a very inconsiderable portion of those to which free humanity will attain in future ages by the progress of mental activity and general cultivation. Every acquisition won by investigation is merely a step to the attainment of higher things in the eventful course of human affairs.

That which has especially favored the progress of knowledge in the nineteenth century, and imparted to the age its principal character, is the general and beneficial endeavor not to limit our attention to that which has been recently acquired, but to test strictly, by measure and weight, all earlier acquisitions; to separate certain knowledge from mere conjectures founded on analogy, and thus to subject every portion of knowledge, whether it be physical astronomy, the study of terrestrial natural forces, geology, or archæology, to the same strict method of criticism. The generalization of this course has, most especially, contributed to show, on each occasion, the limits of the separate sciences, and to discover the weakness of certain studies in which unfounded opinions take the place of certain facts, and symbolical myths manifest themselves under ancient semblances as grave theories. Vagueness of language, and the transference of the nomenclature of one science to another, have led to erroneous views and delusive analogies. The advance of zoology was long endangered, from the belief that, in the lower classes of animals, all vital actions were attached to organs similarly formed to those of the higher classes. The knowledge of the history of the development of plants in the so-called Cryptogamic Cormophytes (mosses and liverworts, ferns, and lycopodiaceæ), or in the still lower Thallophytes (algæ, lichens, and fungi), has been still more obscured by the supposed general discovery of analogies with the sexual propagation of the animal kingdom.*

If art may be said to dwell within the magic circle of the imagination, the extension of knowledge, on the other hand, especially depends on contact with the external world, and this becomes more manifold and close in proportion with the increase of general intercourse. The creation of new organs (instruments of observation) increases the intellectual and not

* Schleiden, *Grundzüge der wissenschaftlichen Botanik*, th. i., 1845 s. 152, th. ii., s. 76; Kunth, *Lehrbuch der Botanik*, th. i., 1847, s. 91-100 und 505.