

ologic law. Nature, indeed, has given us, in our sensations and desires, guides which are trustworthy as long as they are not vitiated by abuse; but their authority is not commonly even recognized, and consequently some knowledge of the elements of physiology is of the deepest importance. By ignorant violation of its simplest laws men are daily impairing their faculties, wasting their energies, and making terrible deductions from the usefulness, happiness, and length of their lives.

2. In the second division, embracing those activities which, by securing the necessities of life, indirectly minister to self-preservation, scientific knowledge of some kind is absolutely essential. The great majority of men "are employed in the production, preparation, and distribution of commodities." Efficiency in those employments "depends on the use of methods fitted to the respective natures of these commodities; it depends on an adequate knowledge of their physical, chemical, or vital properties, as the case may be; that is, it depends on Science." Our author then exhibits the inseparable connection of the various sciences with all the industries by which men gain their living; the necessity of scientific guidance in the investment of capital, and in the prosecution of large joint-stock undertakings, and the fact that, as competition makes productive processes more scientific, as it must do, an ignorance of science will become more and more ruinous. "That which our school courses leave almost entirely out, we thus find to be that which most nearly concerns the business of life. All our industries would cease, were it not for that information which men begin to acquire as they best may after their education is said to be finished. . . . The vital knowledge—that by which we have grown as a nation to what we are, and which

now underlies our whole existence, is a knowledge that has got itself taught in nooks and corners; while the ordained agencies for teaching have been mumbling little else but dead formulas."

3. For the third great division of human activities—"those which have for their end the rearing and discipline of offspring"—it is an astounding fact that no preparation whatever is made. To fit a man to be a carpenter, he is required to undergo some training; to fit him to be a parent, none is thought necessary. The responsibilities of parenthood are assumed by thousands in utter ignorance of the most elementary laws of physiology, and thousands of young lives are in consequence sacrificed or blighted. The young lady who at school has been drilled by learning names, words, and dates, and whose self-culture has been one of piano-playing and novel-reading, becomes a wife and a mother. "And now see her with an unfolding human character committed to her charge—see her profoundly ignorant of the phenomena with which she has to deal, undertaking to do that which can be done but imperfectly even with the aid of the profoundest knowledge. She knows nothing about the nature of the emotions, their order of evolution, their functions, or where use ends and abuse begins. . . . Ignorant as she is of that with which she has to deal, she is equally ignorant of the effects that will be produced on it by this or that treatment. What can be more inevitable than the disastrous results we see hourly arising?" Without a glimmering of the first principles of psychology, or of mental evolution, parents go as far astray in dealing with the child's intellectual, as with its physical and moral development. Here too, then, some general but accurate knowledge of physiology, of psychology, in short, of Science, is supremely important.