

find successively added to these associations by similarity, jealousy, anger, play, reason, affection, recognition of individuals, communication of ideas, sympathy, recognition of images of things as in pictures, understanding of words, dreaming, emulation, pride, resentment, love, ornament, terror, understanding of mechanisms, grief, hate, cruelty, benevolence, use of tools, revenge, rage, indefinite morality, shame, remorse, deceitfulness, apprehension of the ludicrous.

But now take the individual man, study him from his origin and you will find the same functions unfolded in the same order. Why? Why should my mind as well as my body begin as infra-human and gradually become human? And if it must begin as infra-human, why does it in its evolution follow the exact path which is pursued by the growing mind of a dog, an elephant, or a baboon? And why does it also resume and summarize in its growth before it surpasses the animal mind, from its beginning in the lower forms of animal life to its apex in the tribes of the anthropoides? Here, again, you see, are two parallel series, for a knowledge of which the world is indebted to the study of medicine. And the study of these series in its far-reaching results, its transcendent revelations, has done perhaps more than any other toward the elevation and liberation of the human soul. For the results which I have hinted at are only the germ of what may be called modern psychology—the science of the evolution of the human mind.

The study of medicine, then, means the study of chemistry, biology, and psychology. That is, the study of all life, including mind, and of the molecular relations, combinations and reactions which underlie life. If medicine has given us these vast sciences (and she certainly has), might I not well be content to stop here and rest my case, pointing to them and saying: Here, gentlemen, is the value of the study of medicine? But no, I cannot pause even here, for—I am forced to say it—the main value of the study of medicine remains still to be stated. That main value is not direct, but indirect. Let me explain.

It was definitely shown early in the century by Auguste Comte, and later and still more exhaustively by Herbert Spencer, that chemistry underlies biology, that the latter cannot be

understood until the former is mastered; also that biology underlies psychology, and that, as before, the comprehension of the former of these is a necessary preliminary to the effective study of the latter. By the same line of reasoning these great thinkers make it clear that a mastery of biology and psychology is an absolute prerequisite to anything like a scientific conception of sociology; that is to say, we cannot understand the meaning of social facts nor of social relations until we have first made ourselves more or less familiar with the laws that govern the life of the individual.

It is not difficult to see in a rough way the truth of these propositions; for the mind being a function of a part of the body, and being influenced from moment to moment by the condition of the body, any one can understand that the body must be comprehended before the mind can be so. And mind being, as it is, an offshoot or prolongation of body, and depending on this for its very existence, it is easy to see there must be a close analogy between the laws of the two, and that that one of them which first came into existence must have had almost everything to do with establishing the laws for its own offspring. It is still more evident that a knowledge of mind must precede a right understanding of the laws that govern societies, since social movements of all sorts spring directly from the mental states, powers, and aptitudes of the individuals who composed the societies.

As an example of the way biological and psychological knowledge influences social judgments, feelings, and procedure, I may instance the change that is at present taking place in the views and feelings of mankind towards the degraded members of the social body, and in consequence the altered treatment these are receiving from their fellows. It is not long since lunatics were looked upon and treated almost as wild and dangerous animals, but a knowledge of psychology has totally changed our opinions and feelings in their regard, and has in the same degree altered our treatment of them. The same process is now at work upon our mental attitude towards criminals, and I wish here to call your attention to the extraordinary interest of this subject, which has been of late years deeply studied almost everywhere