by attention to these two branches of knowledge to educate one side of the human mind—that side which has been instrumental in erecting the edifice of natural science, and in applying science to industry: *the use of eyes and hands.* I never tire of quoting from Kingsley's lecture to the boys at Wellington College (*Letters and Memories of his Life*, 3rd abridged edition, p. 146; Kegan Paul & Co.); it puts the case into a nutshell:—

"The first thing for a boy to learn, after obedience and morality, is a habit of observation—a habit of using his eyes. It matters little what you use them on, provided you do use them. They say knowledge is power, and so it is. But only the knowledge which you get by observation. Many a man is very learned in books, and has read for years and years, and yet he is useless. He knows *about* all sorts of things, but he can't *do* them. When you set him to do work, he makes a mess of it. He is what you call a pedant, because he has not used his eyes and ears. . . . Now, I don't mean to undervalue book learning, . . . but the great use of a public school education to you is, not so much to teach you things as to teach you how to *learn.* . . . And what does the art of learning consist in? First and foremost in the art of observing. That is, the boy who uses his eyes best on his book and *observes* the words and letters of his lesson most accurately and carefully; that is the boy who learns his lesson best, I presume. . . . Therefore, I say, that everything which helps a boy's powers of observation helps his power of learning; and I know from experience that nothing helps that so much as the study of the world about you."

Literary and mathematical studies are not a sufficient preparation in the great majority of cases for the work of the world—they develop introspective habit too exclusively. In future, boys and girls generally must not be confined to desk studies; they must not only learn a good deal *about* things, they must also be taught how to *do* things, and to this end must learn how others before them have done things by actually repeating—not by merely reading about—what others have done. We ask, in fact, that the use of eyes and hands in unravelling the meaning of the wondrous changes which are going on around us in the world of nature shall be taught systematically in schools generally—that is to say, that the endeavour shall be made to inculcate the habits of observing accurately, of experimenting exactly, of observing and experimenting with a clearly defined and logical purpose, and of logical reasoning from observation and the results of experimental inquiry. Scientific habits and method must be universally taught. We ask to be at once admitted to equal rights with the *three R's*—it is no question of an alternative subject. This cannot be too clearly stated, and the battle must be fought out on this issue within the next few years.

The importance of entering on the right course when the time comes that this claim is admitted—as it inevitably must be when the general public and those who direct our educational system realize its meaning—cannot be exaggerated. The use of eyes and hands—scientific method—cannot be taught by means of the blackboard and chalk, or even by experimental lectures and demonstrations alone; individual eyes and hands must be actually and persistently practised, and from the very earliest period in the school career. Such studies cannot be postponed until the technical college or University is reached; the faculties which can there receive their highest development must not have been allowed to