

shall have done you more good than if I had crammed your minds with many dates and facts from modern history" (conclusion of Kingsley's lectures on America at Cambridge in 1862), are words which aptly convey an idea of one of the chief purposes gained in teaching history, and by which the methods of teaching it are being moulded. In like manner, to inculcate scientific habits of mind—to teach scientific method,—we must teach the use of the facts pertaining to science, not the mere facts. Again, in teaching history in schools, we recognize that the subject must be broadly handled, and attention directed to the salient points which are of general application to human conduct; the study of minutiae is left to the professed historian. But the very reverse of this practice has been followed, as a rule, in teaching natural science in schools. At various times during recent years—at the Educational Conference held at the Health Exhibition in 1884, and at the British Association meeting in 1885—I have protested against the prevailing system of teaching chemistry, etc., to boys and girls at school as though the object were to train them all to be chemists; and I have also protested against the undue influence exercised by the specialist—an influence which he has acquired in consequence of the inability of the head of the school to criticize and control his work. I refer here as much to the examiner as to the teacher; indeed, more. It appears to me to be our duty to regard all questions relating to school education from a general point of view—to consider what is most conducive to the general welfare of the scholar; and in allowing the specialist access to the school, the greatest care must be taken that the subject treated of is dealt with in a manner suited to the requirements of the scholars collectively. It is only in the case of

technical classes that supreme control can be vested in the specialist.

In order that we may be in a position to usefully criticize the educational work which is being done, and the proposals brought forward, it is essential to arrive at a clear understanding of the objects to be achieved. Much of the work in a school is done with the object of cultivating certain arts—mechanical arts, we may almost call them: the art of reading, the art of writing, and the art of working elementary mathematical problems until the operations involved are efficiently performed in an automatic manner. An elementary acquaintance with these arts having once been gained, all later studies may be said to originate naturally in them—both those which lead to the acquisition of knowledge, and those which have for their ultimate object the development and training of mental faculties. The character and extent of these later studies is subject to great variation according as individual requirements, opportunities, and mental peculiarities vary, but the variation is not usually permitted to take place until a somewhat late period in the school career. We recognize, in fact, that in the case of every individual the endeavour must at least be made to develop the intellectual faculties coincidentally in several directions. The question at issue at the present moment, I take it, is the number of main lines over which we can and are called on to travel. Hitherto only two have been generally recognized—the line of literary studies and the line of mathematical studies: but those of us who advocate the claims of natural science assert that there is a third, and that this is of great importance, as a large proportion of the work of the world is necessarily carried on over it. We assert, in fact, that however complete a course of literary and mathematical studies may be made, it is impossible