

EDUCATION AND WORLD CITIZENSHIP

AN ESSAY TOWARDS A SCIENCE
OF EDUCATION

BY

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PREFACE

THE object of the enquiry described in this book is stated on the title-page and further explained in the opening chapter. It is to attempt, in the light of modern knowledge of physiological psychology, to formulate, however tentatively, a few simple and general principles of education, and so to take a further step towards a science of education. The need, and even the duty, of making this attempt became more and more impressed upon me during eight years of work for the Board of Education and eight following years of work for education in the North of England....The enquiry has been in progress for most of this latter period, and many of the conclusions reached have been applied in practice by the university and the college of which I was then a member. Some of these results have formed the subject of lectures, addresses and papers that have already been printed.

The present volume, of which the first draft was finished in July, 1919, is divided into three 'Books.'

Book I is introductory and historical.

Book II is concerned with the aim of education. It is summarised in Chapter 19 which the reader is advised to look at before beginning this section of the work. There should then be no difficulty in following the argument; for, although mathematical analysis has not been wholly dispensed with, its use has been confined to footnotes and appendices which the non-mathematical reader may neglect. In the course of Book II, I was brought face to face with several philosophical issues. These I deliberately abstained from avoiding. I am consequently prepared to find that, here especially, many of the positions I have taken up may prove to be provisional only....The investigations described in Book II, and especially in Chapter 17, first made me realise that a perfect system of education must be world-wide; or, at least, that, in the interests of human progress, the ultimate aim of education should be the same the world over. So it is that 'world citizenship' appears upon the title-page.

Book III treats of a system of education designed to achieve the aim set forth in Book II. But, if such a system of education was to be described within reasonable limits, it became necessary to

focus attention upon a smaller and more homogeneous community than the whole 'Great Society' of mankind. Accordingly—although Book III, particularly in Chapter 21, deals with the manner in which the principles formulated in Book II may be applied to any system of education designed to achieve the aim therein defined—most of Book III, summarised by the coloured plate facing p. 319, is specially concerned with a national system of education that might be established in England within the next decade, if only the League of Nations is sufficiently supported by public opinion to make large-scale war impossible, and to set free for productive expenditure most of the money that is still being dissipated upon armaments.

To William James, I owe far more than I can express or even estimate; and to Dr William McDougall, who now occupies William James' chair of psychology, I am deeply indebted, not only for the stimulus of his writings, but also for his great kindness in reading and commenting upon my typescript while he was busily preparing to migrate from Oxford to Harvard. I am also most grateful to my former colleague in Manchester, Professor Alexander, and to two other friends—Professor John Adams and Professor Percy Nunn—who also read my typescript during the spring of 1920 and sent me valuable suggestions. I cannot omit a word of thanks to Miss Eira Davies who prepared the typescript and willingly gave me much other effective help during more than a year. And I should like, in a very special degree, to thank my father, who has twice read my proofs, and to whom I have always been able to look for advice, assistance, and encouragement.

But to my wife's interest and cooperation, the possibility of writing the book at all has been due. Since the work began, she has allowed it to have the first claim upon my vacations as well as upon my spare moments during term. To her I dedicate the book.

J. C. M. G.

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DIAGRAM

A National System of Education to face p. 319

BOOK I
INTRODUCTION

CHAPTER 1

THE OBJECT AND METHOD OF THE PRESENT ENQUIRY

'I'm not an educationist and I hope I never shall be' said one who, years ago, ranked high in the administration of English education: 'the greatest man who was ever in this Office,' according to his colleague who told me the story. Small wonder that he was reputed great, even greatest! In holding that his wide general knowledge of education was unsystematic, inexact, amateurish, he must have been unique. Rare indeed is the man who does not think himself *expert* in education. 'Even if he has had none, he is ready to say how much (or how little) he has missed it, or what it ought to have been if he had had it.'*

So our friend was great in disclaiming expert knowledge. But was he great in refusing to hope for it, even to strive for it, although its acquisition might well have seemed hopeless? Hopeless enough it was in all appearance; for our friend, had he lived until our own day, might still be excused for denying the existence of any generally accepted principles of education. 'Plato disagrees with you' was the crushing rejoinder made quite recently by an ex-President of his University Union, to whom the writer had suggested that education might become a science!

We recognise expert or systematic knowledge in any branch of natural science when we find a body of closely connected propositions which, with their logical consequences, all the recognised experts in that science agree to accept as corresponding with experience—not merely their own experience, but also so much of other people's as they are able to disentangle from the interpretations which those other people have put upon it†. Thus any two expert mathematicians or physicists or chemists or engineers, discussing matters relating to their science, will be able to assume from the outset a number of wide generalisations upon which both are agreed: generalisations which

* Professor Arthur Smithells, F.R.S., *Presidential Address to the Society of British Gas Industries*. (3rd March, 1911.)

† The systematic or expert character of this knowledge still remains, when subsequent discoveries have disproved its truth: the Ptolemaic astronomers were not less expert in their science, after Copernicus had shewn that the facts might be more simply (and therefore more credibly) accounted for by a different hypothesis.

connect together, and thus 'explain,' a much larger number of facts. So nearly universal is this agreement that when two expert chemists disagree before a court of law, not upon the validity of one of the generalisations which form the principles of their science, but merely upon the question whether a particular fact belongs to one generalisation or to another, their disagreement is sufficiently remarkable to excite comment.

But, when the discussion is of education, disagreement concerning first principles is the rule rather than the exception. There is little agreement concerning the end of education, and still less concerning the means. Even the agreement that does appear to exist is often fictitious and due either to the misuse of metaphor or to the absence of any esoteric or symbolic language in which ideas concerning education can be unequivocally expressed. And yet the need for established principles of education and for the general recognition of such principles is beyond dispute. It is only by means of organised systems of ideas that our thinking, whether of education or of any other matter, can make permanent progress; and it is only by the wide acceptance (which need not be other than provisional) of a single set of principles that a coherent and effective system of public education may be built up. For such a system implies a number of schools and colleges cooperating with each other and with the industries, commerce and other departments of the life of the people so that the effect which each school or college in turn produces upon the development of the person being educated shall be continuous with that which precedes as well as with that which follows it. Not until such a system of education has been established will there be any assurance that, as the pupil passes from school to school or from form to form, each teacher in turn will not aim at undoing what his predecessor has done. Meanwhile, in England and Wales alone, £36,000,000 of public money was, before 1914, being spent yearly on elementary education, and many other millions on higher education in addition. And, since the purpose of this expenditure must be either to modify or to facilitate the development of individuals so as to produce the several types of men who shall not only render the multifarious service required by the community, but also realise their best selves in that service, the need for a larger measure of agreement among educators is evidently urgent.

Our friend who, in spite of his responsibility for the administration of national expenditure on education in England, hoped that he never would be an 'educationist' ought then rather to have striven to

understand, and even to construct, principles of education. The hopelessness of such a task was no sufficient excuse for failing to attempt it. Mr Bergson has reminded us that tasks which seemed impossible to sedentary thinkers may nevertheless be accomplished by acts of faith. For example, the impossibility of swimming might be demonstrated by one who should shew that unless a man could float he could not swim and unless he could first swim he could not float; and yet this arm-chair logic is stultified by the action of the man of faith who, leaping in and struggling, finds that he can swim.

If the apparent hopelessness of the task which our friend refused to attempt was no sufficient excuse for his refusal, such an excuse is still less valid to-day. Much fine work has been accomplished in recent years by physiologists and psychologists. It is, more than ever it was, the duty of those who are concerned with the administration of education to formulate the principles* upon which they are acting and to endeavour to coordinate them with the principles that underlie the practice not only of their colleagues in the service of education, but also of those who control the training of young people who have passed from their last school or college into the employment by which they mean to serve their fellows and to earn their daily bread. The present essay is an attempt to perform this duty; and its publication is intended to stimulate other educators to make similar but more successful attempts.

The first step in the direction of securing more general agreement concerning the principles of education should be to give up the use—or, at least, the misuse—of metaphor. The prevalence of metaphors in educational literature, in its prosaic official reports† as well as in the poetic writings of distinguished ex-officials, is responsible for much of the obscurity which now envelopes educational thought. The plain man readily adopts and employs a metaphor, even a mixed metaphor like that of the 'broad foundation of general culture,'‡ when he would never agree to the psychological theories it implies. He supposes that the metaphor by which he has been misled expresses in plain language a general principle capable of universal application, its limitations having been concealed from him by a change of metaphor whenever his author sees that absurdities are about to appear§. Mr Stelling

* Such principles must, of course, be consistent with all the facts known to those who formulate them. † See Appendix A. ‡ See Appendix A.

§ 'For many minds, to say "as the twig is bent so is the tree inclined" not only illustrates the aphorism "train up a child in the way he should go, and when he is old he will not depart from it," but actually proves it' (Adams, *Evolution of Educational Theory*, p. 286.)

never realised that his whole system of education would have to be changed were he to regard Tom Tulliver's mind as an intellectual stomach with a delicate digestion instead of as a field whose culture demanded ploughing and harrowing by such potent implements as etymology and grammar (to which poor Tom's mind was peculiarly impervious) in order to prepare it for the receipt of any subsequent crop! 'O Aristotle,' adds George Eliot, 'had you been the freshest modern instead of the wisest ancient, would you not have mingled with your praise of metaphor a complaint that to-day we are seldom able to say what a thing is except by saying that it is something else!'

When metaphors have been banned, at least for a while in order to enable the literature of education to recover a more healthy tone, the next step is to permit a more general use of esoteric or symbolic language*. So long as writers and speakers continue to use, without defining, such words as character, culture, imagination, or interest, words which are used every day with a variety of different meanings, so long will each of their readers or hearers put his own interpretation upon the word in question, if indeed he trouble to give it any clear interpretation at all. So long therefore will it remain impossible to convey, or to secure agreement concerning, precise conceptions of the facts or principles of education. So long, too, will any close connexion between education and most branches of social service—education and industry, for example—appear incongruous to many people. Is there not a great gulf fixed, say they, between hazy views of education high in the clouds above and the hard facts of science or technology down in the depths beneath? And yet the intimate relation of education to industry is obvious enough; for of all that goes to make industry possible, let alone prosperous, the human element is by far the most important.

After seizing upon the facts themselves, instead of upon quite different facts contained in a metaphor, and after expressing the true facts in unequivocal even if technical language, the third step towards the formulation of principles is to *select* from among the vast mass of available material a limited number of facts to be associated together by means of a generalisation. The selection of the simplest facts and their relation to one another by means of wide generalisa-

* Cf. W. McDougall: 'When we come to describe the facts of consciousness we find that the notions and the words in popular use are very inadequate to the work of analytic description...the greatest authorities have not yet learnt to use the same descriptive terms, or to apply the same terms in exactly the same senses.' (*Psychology*, pp. 42 and 47.)

tions is, according to one of the greatest of mathematicians*, the method by which all systematic knowledge of natural science has been organised; and the same method is that by which we instinctively acquire such organised knowledge as we possess of the world in which we live.

The selection of certain facts in order to make our main lines of association, our first generalisations, our principles, will involve ignoring other facts, to some of which however we may afterwards return and relate them to our organised body of knowledge by means of other secondary generalisations; further sets of facts may then be related to these; and so on. Moreover, as Poincaré has pointed out, it is of the first importance that the facts selected for linking up by the earliest generalisations shall be *simple*† facts, simpler perhaps than can be directly perceived by our senses. A direction and position in space, represented by a line having length without breadth or thickness, is an example of such a simple fact. It is just the kind of fact that would be included in our first generalisations were we to begin the systematic study of any material object, whether the leg of a table, the continent of Europe, or the Dresden Madonna. And this remains true, notwithstanding the entire absence of a line as we have defined it from any of these objects as apprehended by our senses‡. In short, we are accustomed to think—and this is the more true the more precise we want our thinking to be—not of things as they really are, but of simplified and organised representations or abstracts which for the purpose in hand correspond in all essential respects with more complex sense impressions of those things. Such abstracts are more easily and more accurately reasoned about than the more complex sense impressions. Thus, if we wish to determine the area of a triangular field, we do not think of the field with its crop of wheat, its boundary hedges, its sandy soil, its flatness, its view of the sea, its summer heat and its winter cold; but we think quite simply of an imaginary triangle having more in common with the plan of the field included in the title deeds than with the field itself as it appeals to our senses. And the reason is given by Bergson: 'Whatever is geometrical in things is entirely accessible to human intelligence.'§

* Henri Poincaré, *Science and Method*, pp. 17, 18. † *Science and Method*, p. 18.

‡ Cf. Bernard Hart: 'Atoms are merely constructions of the scientific imagination....The ether and its waves have never been observed in nature, they have been invented by the scientist in order to explain the facts of light and heat. But their actual non-existence does not in the least vitiate the value which they have for science. They enable us to resume and predict a vast number of facts, and this is the sole justification which a scientific law is ever required to possess.' (*The Psychology of Insanity*, p. 15.)

§ *Creative Evolution*, p. 200.

For accurate and easy thinking about education it is necessary to make use of the same method: to *select* the facts about which to think and, above all, to choose facts which are *simple*, even if imaginary like the line which represents the direction of a hedge. Thus, in formulating principles of education, we shall for the most part focus our attention upon the comparatively simple material aspects of the brain, rather than upon the mind or soul, of the person being educated. This procedure implies no low material view of education. It does not suggest that education is concerned with the central nervous system rather than with the soul, although it recognises that the soul can only be reached by human educators through the brain of the pupil. Nor does it assume that we know more of the brain than we do of the soul: the contrary is more probably the case. But, as Huxley pointed out, 'there can be little doubt that the further science advances, the more extensively and consistently will all the phenomena of Nature be represented by materialistic formulae and symbols.'* Bergson states the same truth more fully. '*The intellect,*' he writes '*is characterised by a natural inability to comprehend life.*'† And again, 'The intellect is at home in the presence of unorganised matter.... Now, when the intellect undertakes the study of life, it necessarily treats the living like the inert, applying the same forms to this new object, carrying over into this new field the same habits that have succeeded so well in the old; and it is right to do so, for only on such terms does the living offer to our action the same hold as inert matter. But the truth we thus arrive at...is no more than a *symbolic* verity. It cannot have the same value as the physical verity, being only an extension of physics to an object which we are *a priori* agreed to look at only in its external aspect. The duty of philosophy should be to intervene here actively....'‡

Moreover in reasoning about material things, there is less danger of going astray 'between the moment when we meet a proposition for the first time as the conclusion of one syllogism, and the moment when we find it once more as the premise of another syllogism,'§ by forgetting the meaning of the proposition in the meanwhile. Our reasoning is therefore more likely to be accurate if, without by any means asserting that the brain is merely a material thing, we concentrate our attention upon its material aspects. And then, not only will our conclusions more certainly follow from our premises, but a

* *Collected Essays*, Vol. I, p. 164 quoted by W. Temple: 'The Nature of Personality' (p. 2).

† *Loc. cit.* p. 174. Bergson's italics.

‡ *Loc. cit.* p. 206.

§ H. Poincaré, *loc. cit.* p. 48.

comparison of these conclusions with observed facts will therefore also shew us more certainly if our premises or hypotheses are incorrect*. And if from certain premises we deduce conclusions which accord with all the observed facts, we shall feel the more sure of the truth of the premises themselves and of other unverifiable conclusions drawn from them.

For these reasons we shall, as far as possible, employ 'materialistic formulae and symbols' in this enquiry. While, however, we recognise and make use of the fact that 'all mental phenomena are accompanied by a physiological phenomenon,'† and while we choose to imagine the latter, rather than the former, in our discussions, we need not suppose that, if we could completely describe the structure of the nervous system of any man or animal and had a complete knowledge of the laws of the physical and chemical processes that occur in it, we should be able to account completely for all the conduct of that individual. In fact, we shall not follow Huxley in regarding consciousness as no more than an 'epiphenomenon' caused by the play of nervous processes in the brain but neither modifying those processes nor reacting upon them. Nor shall we accept the view that the processes of mind and brain run parallel to each other but never meet or interact, the doctrine of psycho-physical parallelism. On the contrary, we shall assume what Dr McDougall calls 'the old common-sense view' that psycho-physical interaction does in fact take place, 'that soul and body, or psychical and physical processes, interact or react upon one another, so that psychical processes play a part in determining conduct.'‡

Having pointed out that the first step towards a more coherent and effective system of public education is to secure some measure of agreement, however provisional, upon the aim of education as a whole, and having indicated a starting-point and a method, we are ready to proceed with our enquiry concerning principles of education with a view to discovering and formulating, however tentatively and provisionally, such an aim of education as will be consistent with these principles.

We begin in the next chapter—the second chapter of this first

* In other words, we shall be more likely to discover our mistake if we attribute imaginary properties to the brain than if we erroneously imagine properties of the mind or soul.

† Alfred Binet, *The Psychology of Reasoning*, p. 12.

‡ W. McDougall, *Physiological Psychology*, p. 8, to which reference may be made for a summary of the argument for 'psycho-physical interaction' as against 'epiphenomenalism' and 'psycho-physical parallelism.' A fuller statement is given in *Body and Mind* by the same author.

book—with a summary of Professor Adams' account of the principles of education as they have been accepted in the past.

In our second book we shall briefly describe a few leading features of the human nervous system, and, using the results of some recent researches in neurology and experimental psychology, we shall formulate five laws of thought consistent with each other and with all available facts. While eagerly awaiting new discoveries and generalisations that will confirm or modify the accepted facts or assumptions upon which these five laws are based, we shall use the laws in question as a base for further advance, deducing from these laws results that may be compared with experience and, if they fit, be accepted along with the laws from which they are derived as forming a nucleus around which a science of education may continue to grow. Our second book concludes by pointing out that the aim of education cannot be determined until the aim of life has first been agreed upon; but that, if we assume continuous progress towards some far-off goal, whatever that goal may be, to be the aim of human life, then we can deduce the aim of education from our five laws of thought. The deduction is accordingly made, and a single aim for education ultimately formulated.

The third and final book is concerned with the effect upon a system of education—and especially upon the system, if system it can be called, at present in operation in England—of adopting and pursuing in practice the aim of education defined in our second book. A reformed system of education, consistent with this aim and based upon the principles that led us to its definition, is next described and illustrated by a diagram. This reformed system is especially adapted to English conditions so as to involve the smallest changes in the present public provision of education in this country. It is discussed in some considerable detail, for it is intended to be capable of being brought into operation in England within the next ten years, a decade which in any case bids fair to be more critical than any in English history. Indeed the future, not of England only but of Christendom, largely depends upon harmony of purpose and community of effort among the English-speaking peoples. Education is the most powerful, if not the only effective, instrument for securing this harmony of purpose, that is bound to result in practical cooperation. It is, however, lamentably true that England lags far behind the greater part of the English-speaking world in its public provision for education. The reform of English public education, so as to provide this country with a coherent and effective system that will bring every kind of