

Integrate Education, Aldous Huxley

Integrate Education

As we all know, a little learning is a dangerous thing. But a great deal of highly specialized learning is also a dangerous thing and may be sometimes even more dangerous than a little learning. One of the major problems of higher education now is how to reconcile the claims of much learning, which is essentially specialized learning, with the claims of little learning, which is the wider but shallower approach to human problems in general.

This is, of course, by no means a new problem. My grandfather, T. H. Huxley, a man who was never happy unless he was doing three or four whole-time jobs at once, counted among his whole-time jobs in the 1870s the creation of modern English education. He worked a great deal on elementary and secondary education in London and he also did a lot to turn London University into a modern university, that is to say into a university with a high degree of specialization in various fields. The interesting thing is that by the early 1890s he was already deeply preoccupied with the problem of excessive specialization. About three years before he died he actually worked out a plan to co-ordinate the various specialized departments in the University of London so as to create some kind of integrated education.

I need hardly add that my grandfather's plans were never put into effect and that the problem of integrated education remains exactly as it was—despite the fact that it is a problem which concerns everybody in the field, and despite a number of attempts that have been made to solve it. These attempts have included simply adding pieces of humanistic information to the specialized scientific information; coordinating science and the humanities by means of a historical approach, which has certain merits; and the rather closely related Hundred Great Books programmes. I don't think any of these is altogether satisfactory.

My own feeling is that an ideal integrated education calls for an approach to the subject in terms of fundamental human problems. Who are we? What is the nature of human nature? How should we be related to the planet on which we live? How are we to live together satisfactorily? How are we to develop our individual potentialities? What is the relationship between nature and nurture? If we start with these problems and make them central, we can obviously bring together information from a great number of at present completely isolated disciplines. I think it is probably only in this way that we can create a thoroughly integrated form of education.

Meanwhile, however, this integrated education doesn't exist. Here I think may be found the reason why a person like myself, who has what may be called a kind of encyclopaedic ignorance in many fields, may be of use in an institution of higher specialized learning like this one. A man of letters can perform a valuable function in the world at present by bringing together a great many subjects and by showing relationships between them. It is a question of building bridges.

We have an interesting word, pontifex, or bridge builder. It is the Latin name for a member of the college of priests in Rome, the head of which was called pontifex maximus. (Actually, the accepted etymology of pontifex is probably a false etymology. I am almost certain that the original word was not pontifex but puntifex, which in an old pre-Latin

language, the Oscan language, means the maker of propitiatory sacrifices. The Romans translated this into their own language as pontifex, the maker of bridges.) In a religious context pontifex means builder of a bridge between Earth and Heaven, between the material and the spiritual, the human and the divine. The whole idea of the pontifex, the bridge builder, is a very profitable one, and we can meditate upon and make use of it in a very productive way.

The function of the literary man in the present context, then, is precisely to build bridges between art and science, between objectively observed facts and immediate experience, between morals and scientific appraisals. There are all kinds of bridges to be built, and this is what I shall try to do in the course of these lectures.

But there is a great problem facing the man of letters who tries to build bridges. It is interesting to go back into the history of literature and to see that this problem was considered quite carefully by Wordsworth, at the end of the eighteenth century, in the preface to *Lyrical Ballads*. He says that the remotest discoveries of the chemist, the botanist, the mineralogist will become for the poet a subject matter no less suitable than any other on the condition that these subjects become interesting to human beings at large and can be considered in the context of what they do for men as 'enjoying and suffering beings'. This is profoundly true. If the effects of science are to be incorporated into art they must in some way become something more than mere facts, and scientific theories must become something more than mere abstractions and generalizations: they must become facts of direct experience, facts which mean something, facts which have an emotional content.

But here we are up against a vicious circle, for while it is quite clear that the facts of science cannot become suitable material for poetry and literary art in general until they become emotionally tinged and involve us as persons, it is also clear that they are unlikely to become so emotionally tinged, and involved in the general feeling tone of humanity, until they have already been expressed in artistic form—for it is the function of the artist to make available for the rest of the community large areas of value and meaning. You can say that in a sense the emotion and value patterns of people's lives are largely created by the artist, who finds expression and form of words suitable for making known and interesting what was previously either unknown or uninteresting.

Thus we are on the horns of this dilemma: we need to have the facts of science tinged with emotion before they can become fully valuable for us in emotional terms. I suppose the way out of this vicious circle will be through the providential arrival at some time or other of some vast genius who will break through and somehow create for us the necessary verbal apparatus through which the facts and theories of science can become the fitting material of art. Naturally we cannot foresee how and when such a genius will arise, but the wind bloweth where it listeth and possibly this mysterious bridge builder, this pontifex maximus, will someday come into existence.

Now I am certainly not a pontifex maximus, but even a pontifex minimus can do something for the time being. The question is one of finding a suitable vocabulary in which to deal with these problems. At present we have a large variety of vocabularies: we have the vocabulary of ordinary speech, we have the vocabulary of prose literature, we have the heightened vocabulary of poetry, and we have the abstract vocabulary of scientific theory. (We also have the absolutely catastrophic vocabulary of textbooks, which I find extremely painful to read. It is no wonder

that, given such vocabulary, scientific facts and theories are not felt to be relevant to us as 'suffering and enjoying beings'—or perhaps they are felt to be relevant as suffering beings, but certainly not as enjoying beings.) What we do not have at the moment is the form of words with which to express the coming together of scientific fact and scientific theory with our direct experience.

One cannot overstress this necessity for words. There is a very interesting and instructive story which concerns the great French painter, Degas, and the equally great French poet Mallarmé. Degas in his spare time used to write verses. One day he met Mallarmé and said to him, 'It is a terrible thing, Mallarmé. I don't know what happens. I have such wonderful ideas, but when I write them down, the verse is very bad, and it isn't poetry'. Mallarmé answered, 'My dear Degas, poetry is not made out of ideas, it is made with words'. It is precisely this genius for putting ideas into words which somehow have an X-ray power of penetration that marks the great men of letters.

We can say that the whole programme which we need to accomplish if we are to have an integrated viewpoint is, in a sense, summed up in an extraordinary phrase in Shakespeare, where Hotspur says:

But thought's the slave of life, and life time's fool;

And time, that takes survey of all the world,

Must have a stop.

It is one of those fantastic things one finds in Shakespeare; in a line and a half he throws out an entire philosophy and then passes on to something else. 'Thought's the slave of life', we cannot think abstractly without being involved as physiological beings, as members of this living community on the planet; and 'life time's fool', the passing of time tends to undermine everything and produce constant change; and yet 'time, that takes survey of all the world, must have a stop', there is a religious, spiritual side to life—time must have a stop in the timeless and eternal world. It is these three worlds—the world of abstractions and concepts, the world of immediate experience and objective observation, and the world of spiritual insight—which must, in any integrated point of view, be brought together.

Needless to say, this is a pretty difficult proposition. How can we describe for example a mystical experience? What we need is a language that will permit us to speak of such a profoundly personal experience in terms of philosophical concepts, in terms of biochemistry, and in terms of theology. At present these are three totally separate and unconnected vocabularies; our problem is somehow to discover a literary, artistic vocabulary which will make it possible for us to pass without any serious jolt from one point of view to the other, from one universe of discourse to another. When the problem is posed in a specific form such as this, one can see very well that it is excessively difficult. We really do need a poet like Shakespeare—a pontifex maximus—to solve it for us. Meanwhile I shall do my best to go ahead with my limited resources and see what I can do in the way of building bridges.

Let us now change our metaphor from one of engineering to a very expressive metaphor of domesticity and speak about what has been called the 'celibacy of the intellect'. The trouble with all specialized knowledge is that it is an organized series of celibacies. The different subjects live in their monastic cells, apart from one another, and simply

do not intermarry and produce the children that they ought to produce. The problem is to try to arrange marriages between these various subjects, in the hope of producing a valuable progeny. And the celibacy is not only among different aspects of the intellect; it is also a celibacy of the passions, a celibacy of instinct.

This theme of the isolation of the passions is a very characteristic feature of contemporary literature. If you go to see certain plays—for example, by Tennessee Williams, a dramatist of enormous talent, which I greatly admire—one sees an almost complete celibacy of the passions. They exist in a chemically pure state without any connection with the intellect whatsoever. They are living a life entirely of their own. If you were to take these plays as a serious picture of contemporary life, you would certainly be very much deceived, as I was thinking the other day when I saw one of them very well staged in the theatre. The mere fact of putting it on required such a passionate combination of people using their intellect and keeping their will firmly fixed on the subject that it was itself a complete denial of the reality of the view of life in which the passions are divorced from the intellectual and voluntary activities of human beings.

At any rate, what we need to do is to arrange marriages, or rather to bring back into their originally married state, the different departments of knowledge and feeling which have been arbitrarily separated and made to live in their own monastic cells, in isolation. We can parody the Bible and say, 'That which nature has brought together let no man put asunder'; let not the arbitrary academic division into subjects tear apart the closely knit web of reality and turn it into nonsense.

Yet, here we are up against a very serious problem: any form of higher knowledge requires specialization. We have to specialize in order to penetrate more deeply into certain separate aspects of reality. But if specialization is absolutely necessary, it can be, if carried too far, absolutely fatal. Therefore, we must discover some way of making the best of both worlds—of the highly specialized world of objective observation and intellectual abstraction, and of what may be called the married world of immediate experience, in which nothing can be separated. We are both intellect and passion, our minds have both objective knowledge of the outer world and subjective experience. To discover methods of bringing these separate worlds together, to show the relationship between them, is, I feel, the most important task of modern education.

I would like to quote a very beautiful sentence from a letter written by T. H. Huxley to Charles Kingsley on the occasion of the death of Huxley's small son, aged four. Kingsley had written a letter of sympathy, and my grandfather wrote back at great length on the whole problem of immortality and the position of the scientist in the modern world. He said,

Science seems to me to teach in the highest and strongest manner the great truth, which is embodied in the Christian conception of entire surrender to the will of God. Sit down before fact like a little child, and be prepared to give up every preconceived notion, follow humbly wherever and to whatever abysses nature leads, or you shall learn nothing.

One sees here that the scientific process is intrinsically an ethical process, a side to science which is insufficiently stressed at present. The humility of the scientist in the face of fact and observation is a thing of tremendous importance from an ethical point of view. This was

seen very clearly as long ago as the time of Francis Bacon, who, though not himself a serious man of science, did lay down a number of general ideas of great significance for the development of science in the seventeenth and eighteenth centuries. Bacon was hostile to scholastic philosophers, and even to Greek philosophers, who presumed to make statements about the universe without taking the trouble to find out what the facts really were. There are a number of remarkable passages in Bacon where he talks about the wickedness of these philosophers.

He speaks of Plato and Aristotle as guilty men. (Bacon's hostility to Plato and Aristotle was rather unjust. Aristotle, after all, was a very important scientific observer.) There is a famous passage in *The Advancement of Learning*, for example, where he says the scholastics were like spiders, weaving webs out of their own heads without any consideration of what was going on in the world, and the webs were admirable for the fineness of the thread and the workmanship, but without any substance and without any fruit. In the same way, in the preface to one of his minor books, *The History of the Winds*, he speaks in a very eloquent and powerful way about the ethical quality of science. He says,

Therefore, if we have any Humility towards the Creator; if we have any Reverence and Esteem of His works; if we have any Charity towards Men or any Desire of relieving their Miseries and Necessities; if we have any Love for natural Truths; any Aversion to Darkness; and any Desire of purifying the Understanding; Mankind are to be most affectionately interested and beseeched to lay aside, at least for a while, their preposterous, fantastick and hypothetical Philosophies (which have led Experience captive, and childishly triumphed over the Works of God;) and now at length condescend, with due Submission and Veneration, to approach and peruse the Volume of the Creation; dwell some time upon it; and, bringing to the work a Mind well purged of Opinions, Idols and false Notions, converse familiarly therein.

This is a splendid passage, and one which should be meditated on, because it is precisely the reluctance to accept preconceived notions and to turn one's opinion into a thesis rather than a working hypothesis which is the hallmark of a genuine scientist and which constitutes the essential ethical nature of scientific activity.

Bacon felt very strongly that one of the values of science was in its fruits, that it could do a great deal to lessen human want and human suffering. As we know, it certainly can do this. But it can also do other things of which we are painfully aware at the present time. As Bacon was never tired of saying, knowledge without love can be profoundly corrupt and even evil. He blamed philosophers like Plato and Aristotle not only because they lacked the humility to study objective facts and base their reasoning upon those facts, but because they had pursued knowledge purely for the sake of intellectual satisfaction, not with the motive of love or in order to help human beings.

Now the shoe is rather on the other foot: the overweening philosophers of today are members of the scientific school who have forgotten scientific humility. We are all familiar, for example, with the extreme bumptiousness of the early behaviourists. When one reads some of the early writings of J. B. Watson, one is absolutely flabbergasted that anybody who professed to be scientific could have made statements so sweeping and dismissed so cavalierly such enormous areas of human experience. To 'scientists' such as these certainly Bacon would have brought the reproach that they were (a) overweening and (b) lacking in the love which alone can make knowledge precious and valuable.

Our problem, then, is somehow to reunite the different aspects of the world as we know it, to recreate the married state with which direct experience makes us familiar. For we are all the time familiar with the fact that the world of concepts and abstractions is balanced by the world of immediate experience, and that the inner experience is there at the same time as the objective description of nature built upon inferences. But what is the philosophical relationship between these two sides of our knowledge, the inner and the outer? I am inclined to think that philosophically minded scientists like Max Planck are right in conceiving that the two worlds, the abstract and the immediate, are simply aspects of the same reality, that the basic Reality is a neutral monism which is seen from one point of view as atomic physics (for example) and from another point of view as immediate experience of value, love, and emotion. We can't go into this view at the moment, but I wanted to mention it and to point out that the building of this fundamental bridge is an urgent, urgent problem in our world.

I deliberately kept the title of this course as vague and as general as I could, so as not to commit myself too far in advance or to pretend that I know too much. Our business will be to take various aspects of the human situation to see how bridges can be built between facts and values. I shall start with a consideration of man in relation to the planet, for we live on this particular planet and, whether we like it or not, we have to get on with it indefinitely. Unfortunately, I am sorry to say, all the stuff about going to Mars and so on seems to be pretty good nonsense. It is very much more important to see what we can do with Earth, and unfortunately what we are doing with Earth is disastrously bad. I shall try first of all to set forth the facts of what we are doing with our planetary environment and consider what the ethical corollaries of these facts are and what Weltanschauung would help us to remedy them. Then I shall talk about the relationship between the sources that are available now and those that will be available in the future. I will build a slight, hypothetical bridge into the future.

After that I think we shall turn to the strictly biological problems of the human individual and discuss man from the point of view of heredity and from the point of view of environment, and try to establish some kind of balance between these two factors which so profoundly influence our existence. The problem of man in society will follow, and there I shall spend a good deal of time in discussing what seems to me the most profoundly important sociological factor of modern times: the growth of technology and what may be called the technicization of every aspect of human life. Then I will move on to other aspects of the social life, and in due course I hope to get down to the problem of the individual, the problem of human potentialities and what can be done to realize those that at present remain to a large extent latent in a large portion of the people. Needless to say, in this connection there will have to be discussions of art and of the problems of creation and insight.

We shall wander very far afield in this search for bridges. By the time we are at the end we shall have covered a great deal of ground, and we will also be extremely bored with what I have to say, but fortunately I shall then quietly disappear.

The End