

LIBERAL EDUCATION and the  
SECONDARY CURRICULUM

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An analysis of the connection between liberal education and knowledge, and its implications for a secondary curriculum.

This dissertation is submitted to the Division of Teacher Education (Mount Nelson) within the Tasmanian College of Advanced Education as part of the requirements for the degree of Master of Education.

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ABSTRACT

Current debate concerning secondary education has given rise to questions relating to the relative emphasis which should be given to both the development of knowledge and understanding by the pupils, and socialization during secondary education. Focussing on the former would seem to correlate with the acceptance of a view that a universal structuring of all knowledge is possible and that the secondary curriculum should be primarily concerned with pupils acquiring knowledge within such a structure. Conversely, when the secondary school is considered to be primarily an agency of socialization, such a view of knowledge would not appear to be accepted. In this case, knowledge may be seen to be culturally bound and socially determined.

In his article entitled "Liberal education and the nature of knowledge"<sup>1</sup> Hirst analyses knowledge as being structured into logically distinct and mutually irreducible forms. Each such form has certain central concepts which are characteristic of that form. For a given form of knowledge these and other concepts denote particular aspects of experience. The networks of possible relationships between the concepts specific to a form of knowledge form a basis for understanding experience. These relationships may be understood within the distinctive logical structure of that form. By virtue of its particular terms and logic, each form has distinctive expressions and statements, which are testable against experience. The various forms of knowledge are also differentiated according to techniques and skills which have developed for exploring experience and testing their characteristic expressions and statements against experience.

The acceptance of such an analysis has clear and necessary implications for both the planning and conduct of secondary education.

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, pp.30-53.

### Introduction

This dissertation relates to the paper entitled "Liberal education and the nature of knowledge" written by Professor Paul H. Hirst, which was published in *Philosophical Analysis and Education* (R.K.P., 1965). In it the author advances a thesis analysing the necessary differentiation of knowledge into logically distinct forms and considers the implications of this thesis for the content and conduct of a liberal education.

Thus the central themes of this dissertation will be a consideration of Hirst's analysis relating to "forms of knowledge", an examination of their place in a liberal education, and the implications of both these aspects for current secondary education in Tasmania.

Such considerations are of particular relevance to the current discussions and public concern relating to Tasmanian secondary education. Since approximately 1950 public debate on secondary education appears to have moved through two clear stages and to be currently entering a third stage. In the first instance doubts were expressed as to whether or not the system of high and modern schools, which operated in Tasmania before the 1960's, was catering for the abilities of all secondary pupils. Of particular concern was the possibility that a significant number of students, who had the ability to succeed within the more academically oriented curricula offered by the high schools were, through selection procedures based entirely on the measurement of intelligence quotients, being denied an opportunity to succeed academically at the high school level. As a consequence the abolition of selective high schools, which was completed in Tasmania by the early 1960s, became the means by which equality of educational opportunity was to be provided for all secondary students. In this context "equality of educational opportunity" referred to the unrestricted entry of all pupils, who had completed their primary education, into a high school, and to the possibility of all courses of study offered by the school being available to all pupils.

The subsequent establishment of comprehensive high schools throughout the state appeared to engender a second phase of public debate, which had as its central issues the internal organisation of schools and the selection of pupils for the various curricula within schools. This move-

ment was accompanied by the development of different subject syllabi for pupils of various "levels of ability" in an attempt to solve the problem of underachievement by students undertaking traditional curricula. Criticisms of contemporary secondary curricula, which have undergone little change since then, range from allegations that these lead to the fragmentation of knowledge, and thus deny students the opportunity to come to an understanding of "society as a whole", to criticisms of "progressive" teaching methods, unstreaming and innovations such as expansion into the 'soft' social sciences and "open" education. Moreover, the so-called "tyranny of subjects" as practised in high schools is now being vigorously opposed by suggesting "integrated" curricula based, for example, upon themes, topics or projects.

It is my belief that the apparent failure of these measures, and the growing public and professional concern being expressed with regard to the inadequacy of secondary education in Tasmania, will give rise to extensive re-consideration of the secondary curriculum. It is my expectation that these considerations will focus upon the total curriculum of secondary schools, their planning and teaching. Such emphasis would generate discussions on the fundamental nature of knowledge itself and the implications for curricula and curricula planning. In this sense Hirst's analysis relating to the basic structuring of knowledge into autonomous forms, and of the possibility of a universally valid curriculum, may be seen as completely opposed to the views of some sociologists. For example, Michael F.D. Young<sup>1</sup> postulates that knowledge is socially-derived and culturally dependent. In the extreme, such a view may deny the possibility of anything other than a totally individualised curriculum. Hirst's paper on a "Liberal education and the nature of knowledge" may, therefore, provide a basis upon which current secondary education in Tasmania can be discussed.

In order that such discussions may be based upon a detailed analysis of the above paper, the first section of this dissertation undertakes such an analysis. The three distinct aspects of this paper - namely, the concept of a "liberal" education, the nature of knowledge, and the planning and

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<sup>1</sup>Young, Michael, F.D., as in  
Brown, R.D. (Ed.), Knowledge, Education and Cultural Change, Tavistock, 1973

conduct of a liberal education - are separately considered.

The second section of this dissertation considers the implications of the foregoing analysis for secondary education, and, in particular, for secondary education in Tasmania. These considerations, for reasons previously outlined, strongly emphasise the centrality of Hirst's analysis to the secondary curriculum and to current professional debate on secondary education. To this end possible definitions of the curriculum and curriculum objectives, as well as curriculum integration and possible implications for the management of secondary education are discussed in detail.

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SECTION A

LIBERAL EDUCATION

and the

NATURE OF KNOWLEDGE

The Concept of Liberal Education

Throughout "Liberal education and the nature of knowledge" Hirst is concerned with providing an adequate characterization and justification of a liberal education. The search for a definition of such an education is, according to Hirst, justified on the basis that to deny the value of such a search would be to bring into question the worthiness of the pursuit of rational knowledge and to "question the pursuit of any kind of rational knowledge is in the end self-defeating, for the questioning itself depends upon accepting the very principles whose use is finally being called into question"<sup>1</sup>. His requirement that any definition of education, and hence of a liberal education, must be accompanied by a justification may, it is contended, in itself be justified on the basis that the activities of education must always be intrinsically worthwhile, i.e. the activities engendered by such a definition must be capable of more than instrumental justification. And it is in this sense that Hirst appears to be in agreement with Peters' notion of educational activities being such that they are not differentiated in terms of task and achievement, and are hence of intrinsic value to individuals. The completion of an activity by an individual may be worthwhile to that individual solely on the basis of it being found to be valuable in itself. That is, the valuing of the activity by the individual does not entail the differentiation of the task involved in the activity with the achievement of completing it. For example, a student may find solving a particular problem in mathematics worthwhile. In so valuing solving this problem the student may not separate the task of solving the problem from the achievement of having solved it. For this case the activity of solving the problem is intrinsically worthwhile to the student. By comparison, the student who finds the solution of the problem worthwhile only because its completion enables him to gain something he values which is extrinsic to solving the problem, has, in valuing this activity, separated task and achievement. Alternatively, it may be argued that the requirement that a definition of education be accompanied by a justification for that definition arises only through employing definitions which prescribe intrinsic value as an essential characteristic of educational

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<sup>1</sup>Hirst, P.H., "Liberal education and the nature of knowledge",  
Philosophical Analysis and Education,

R.K.P., 1965, p. 113.



activities.

However, Hirst's definition and justification of his view of a liberal education does not necessarily involve such an essential characteristic; rather he bases the notion of such an education on the "nature and significance of knowledge itself"<sup>1</sup>. Furthermore, it is indicated that the definition and justification of a liberal education has "ever since the Greeks been repeatedly located in man's conception of the diverse forms of knowledge he has achieved"<sup>2</sup>. It is on this basis that a consideration of the Greek notion of a liberal education becomes important to any examination and comparison of Hirst's proposals.

For the Greeks the development of the concept of a liberal education depended upon the significance of the acquisition of knowledge for the mind, and the relationship of this knowledge to reality. Knowledge was significant in that its pursuit was considered essential to the ultimate development of the mind, and the means by which the good life was to be obtained. Moreover, it was asserted that, through the "right" use of reason "the mind comes to know the essential nature of things, and can apprehend what is real and immutable"<sup>3</sup>. This view of the attainment of knowledge leads to the notion of different levels of knowledge, and hence implies the incorporation of all knowledge into a comprehensive hierarchical structure, the pattern of which is formed as knowledge of ultimate reality is developed. An education based upon such a metaphysical conception of knowledge is justified on the grounds that, not only is it based upon what is true and is such that it has value to the individual in development of the mind, but it is essential to man's understanding of how he should live. Thus the significance of this concept of a liberal education arises from the position which the basic metaphysical doctrines give to knowledge in their unifying concept of mind and reality.

But Hirst's explicit stipulation that a liberal education must be

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<sup>1</sup>Hirst, P.H., "Liberal education and the nature of knowledge",  
Knowledge and the Curriculum, R.K.P., 1974, p. 32

<sup>2</sup>op. cit., p. 32

<sup>3</sup>op. cit., p. 31

characterized by being based upon the nature of knowledge alone, is an attempt to define education in such a way as to reject the doctrines of metaphysical and epistemological realism, which are fundamental to the Greek notion of a liberal education. If, as Hirst argues, knowledge is not thought of as developing the mind and is no longer essential to man's conception of how he ought to live, then it may become necessary to specify those qualities of mind and moral virtues, which are fundamental to a liberal education. In addition to the difficulties inherent in the stipulation of such qualities and values, it may be argued that if the significance of the acquisition of knowledge to the development of the mind and to the good life is questioned, it becomes difficult to justify an education based upon knowledge alone. Thus attempts may be made to define a liberal education in terms of the development of mental abilities, which are agreed upon as being desirable and which are independent of knowledge. But, as Hirst contends, the exercise of such an ability only becomes apparent through associated and publicly describable and testable achievements. Hence such an ability must be specified in public terms and criteria. But such a specification is dependent upon the public features of the knowledge concerned. Thus if mathematical knowledge is describable in public terms, then those activities assumed to indicate the exercise of a mathematical ability may be described and assessed publicly. For example, to speak, in this context, of "the ability to solve quadratic equations" becomes meaningful, if and only if, (a) the complete field of knowledge relating to the solution of quadratic equations is describable in terms which are publicly understood, and (b) there are publicly accepted terms and criteria through which the exercise of such an ability can be described and assessed.

It follows then that such public specification is logically necessary to the indication of mental abilities, and that no such specification can occur without a full account of the public features of the related areas of knowledge. It is on these grounds that Hirst concludes that not only can a liberal education not be adequately defined in terms of mental abilities, but that public description of the fields of knowledge involved is a prior and logically necessary condition for its specification. In addition, given that such criteria are specific to the particular area of knowledge in terms of which an ability is to be specified, and that

these criteria, and therefore abilities, are not generalizable to other areas of knowledge, then the definition of a liberal (general) education in terms of a set of abilities would seem to be precluded.

But

the use of broad, general terms for these abilities serves in fact to unify misleading quite disparate achievements <sup>1</sup>,

and

the impression is created by this terminology that it is possible to develop unitary abilities <sup>2</sup>.

The extent to which such abilities are possible is, according to Hirst, a matter for empirical investigation. If identified these abilities must be characterized in terms of the public features of knowledge. Transfer of training may then be considered in terms of the possible application of such abilities to diverse fields of knowledge. In this case the criteria which determine whether or not a particular ability may be applied to a given field of knowledge would be vital to the significance of this ability for a liberal education. On this basis if the criteria for a particular ability were drawn from the public features of several of the forms of knowledge, then this ability would be highly significant in defining a liberal education.

Hirst considers that discussing a liberal education in these terms leads to the danger of "looking for transfer of skills where none is discernible"<sup>3</sup>. That is, skills developed in relation to one form of knowledge are unlikely to be transferred through their application in another form of knowledge. This is not to deny, however, that knowledge acquired in one area can be used in the study of other areas of knowledge. For example, knowledge acquired through a study of mathematics may assist in the understanding of the physical sciences.

In addition, Hirst rejects the claim that, for example, the study of one major science can lead to a liberal education through the development

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<sup>1</sup>Hirst, P.H., Knowledge and the curriculum, R.K.P., 1974, p. 36

<sup>2</sup>op. cit., p. 36

<sup>3</sup>op. cit., p. 36

of abilities such as "effective thinking" and "effective communication". His basis for this rejection is that, even if these abilities could be satisfactorily defined it remains to be empirically demonstrated that these abilities are general, but distinct, and that they can be developed by the study of one particular area of knowledge.

By its exclusion of all aspects of study other than those which could be classified as intellectual studies, a liberal education based entirely on knowledge may not be considered to provide for the total education of a child in that it ignores, for example, character education. Furthermore, it may be claimed that the range and depth of development of intellectual skills encompassed by such an education is necessarily limited - linguistic skills, for example, may only be developed to the level required for the use as "tools" in the acquisition of knowledge. In addition to these limitations, it may be proposed that a liberal education so defined, and in contrast with that of Greek origin, evidences a lack of concern for moral commitment. For whereas the Greek notion of a liberal education was, in general terms, justified on the basis that

- (a) it is based upon what is true,
- (b) knowledge is a distinctive human virtue, and  
hence of value to the mind, and

(c) knowledge is essential to man's understanding of how he ought to live, Hirst's proposals tend to emphasise the understanding of moral matters rather than a commitment to moral principles. But any such understanding in this sense would appear to be related to whether or not man's moral understanding is necessarily dependent upon religious knowledge or beliefs, and hence, for Hirst, whether religious knowledge can be categorized as a "form of knowledge". The assumption of both of the above proposals would enable moral education to be given a religious basis and to be a part of a liberal education. Alternatively, if moral education is independent of religion, then, depending upon whether or not there is a Hirstian form of moral knowledge, moral education may again be an autonomous component of a liberal education. In such terms, such an education cannot be considered to be a total education where a total education not only involves a liberal education but may also include, for instance, physical education and character training. Clearly the

validity of this argument is dependent upon the characterization of a total education which in turn raises the dual and ultimately ethical questions of what part of a total education should be included, in particular, in secondary education and also, who should be responsible for the constituent parts of such a total education. A more detailed consideration of these questions is undertaken in the second section of this dissertation.

Furthermore, it may be alleged that as the proposed liberal education does not include everything other than specialist education and, other than the development of the mind, is not concerned with aspects of personal development such as emotional and moral development it cannot be considered to be a general education. In addition, and on the assumption that the concepts and logical structure of one form of knowledge are necessarily valueless as vehicles for knowledge and understanding in another domain, specialisation through the exclusion of certain forms of knowledge cannot form the basis of such a general education.

Now it may be contended that Hirst's characterization of a liberal education indicates a concern for only the academically able pupils and for the retention of the traditional curricula as typified by those of the Grammar schools of the United Kingdom. These allegations would appear to rest upon, at least, the following assumptions:-

- (i) that success in the acquisition of knowledge and understanding of the various forms of knowledge is necessarily dependent upon certain "abilities" of the students;
- (ii) that advocating traditional curricula is inappropriate because
  - (a) these have existed for a long period and hence need to be changed;
  - (b) their retention precludes the use of 'modern' teaching approaches, and
  - (c) there are matters of greater importance which should receive priority in curricula development. It is empirically evident that there

are different degrees of success in the acquisition of knowledge and understanding by different students, but it does not necessarily follow that the content of a curriculum should be entirely determined according to this single criterion, if at all. Again, difficulties experienced by pupils in studying a particular curriculum may arise from factors other than the content of that curriculum, teaching approaches constituting one such vital factor. Furthermore, it is neither logically nor empirically necessary that the length of the period for which a particular curriculum has been in use in any way determines the value of such a curriculum or the teaching methods which may be employed in relation to it. There is, however, a need to examine in detail the final claim relating to the curriculum proposed by Hirst, viz. that there are matters of greater importance (than the forms of knowledge) which should receive priority in curriculum development. That is, the justification, and the values upon which this justification for Hirst's curriculum proposals rest, must be carefully considered.

The basis for Hirst's justification of a liberal education which rests solely upon his analysis relating to the structuring of knowledge into 'forms of knowledge', is that there is a "logical relationship between the concept of 'mind' and the concept of 'knowledge', from which it follows that the achievement of knowledge is necessarily the development of the mind - that is, the self-conscious rational mind of man - in its most fundamental aspect"<sup>1</sup>. Thus the connection between knowledge and the development of the mind is not, as was the case for the Greek notion of a liberal education, being maintained on metaphysical, but rather on logical grounds.

To ask for justification at all of any activity is significant only if there is some form of commitment to what we are seeking to justify. Thus to ask for a justification for the pursuit of rational knowledge presupposes some commitment to this pursuit and, at least, to a rational knowledge of any such justification. Furthermore, such a justification is only possible if what is being justified is intelligible in the sense that it may be understood in terms of concepts and judgments, which may

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 39.

be made in accordance with publicly accepted criteria. The essential pre-requisites for any such justification are the assumptions that the pursuit of rational knowledge is worthwhile, and that the characteristic features of the structures through which knowledge acquires rationality, and hence the criteria against which judgements are to be assessed, may be publicly expressed as a coherent symbol system. Under these assumptions, structures other than those advocated by Hirst could form the basis of a similarly reasoned justification.

Again, if a commitment to an activity is necessary before we can consider attempts to justify that activity as significant, then on what basis is such a commitment justified? That is, we may ask for what reason, or reasons, do we advocate the pursuit of this or that activity. This, in effect, is to suggest that we must consider, in the broad sense, importing a utilitarian principle. Thus

.... we cannot rest content with justifiatory arguments which, in the final analysis, rest upon an appeal to notions like pursuing activities just for the sake of pursuing them or pursuing them because they are valuable in themselves <sup>1</sup>.

To ask why we should pursue rational knowledge indicates a prior commitment to that pursuit, but to ask why we should study physics does not logically entail a commitment to the study of this subject. Thus the transcendental argument used by Hirst to support his prescription for a liberal education "fails to show that there is something logically odd about asking whether or not one should pursue rational knowledge in a rather stronger sense ..."<sup>2</sup>

Alternatively Dearden<sup>3</sup> offers an instrumental justification by maintaining that different forms of understanding - mathematical, scientific, aesthetic - are basic constitutive elements of rational choice. On this

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<sup>1</sup> Woods, R.G. and Barrow, R.St.C., An Introduction to Philosophy in Education, Methuen and Co. Ltd., 1975, p. 35.

<sup>2</sup> Lawton, D., Class, Culture and Curriculum, R.K.P., 1975, p. 79.

<sup>3</sup> Dearden, R.F. as in Lawton, D., Class, Culture and Curriculum, R.K.P., 1975, p. 79.

basis it may be claimed that the initiation of children into these forms "helps them to make rational choices, to choose their own paths through life and not simply do or believe what others tell them, in short, to become autonomous persons"<sup>1</sup>. But if it is admitted that initiation into the various forms of knowledge is a pre-requisite to becoming an autonomous person, then a complete justification of a curriculum based on these forms requires a prior justification of the ideal of personal autonomy. Dearden attempts this justification as follows:

Even for me to question whether I ought to test my beliefs and make my choices according to my own reasoned judgement, rather than in obedience to authorities, is already to have decided in favour of autonomy; for I am asking for reasons as to what I ought to do, and taking it for granted that it is I who will decide the merits of the answers.<sup>2</sup>

But this is again a transcendental argument. For to ask whether or not I should be an autonomous person may only be asked if there is at least some commitment to personal autonomy. Alternatively, the questioner may not attribute intrinsic value to such autonomy and may, in fact, answer "No" to the question.

In justifying his concept of a liberal education Hirst contends that the achievement of knowledge is necessarily the development of the mind. In terms of the forms of knowledge and their public symbolic expression evidence for the achievement of knowledge and for the development of the mind would both be sets of statements made in terms of this public symbolism. Given any set of such public statements it would, therefore, not seem possible to determine whether or not the set was evidence for either the "acquisition of knowledge" or "the development of the mind", or both. In this case, two possibilities may arise. Firstly, it may be proposed that acquiring knowledge and developing the mind are synonymous in meaning, and that this meaning is that conveyed by the set of public statements. Thus the difficulty of relating mind and knowledge is apparently removed by

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<sup>1</sup>Dearden, R.F. The Philosophy of Primary Education,  
R.K.P., 1968, p.46.

<sup>2</sup>op. cit., p. 46.



stipulation. But given that there can be no evidence to support such a stipulation it is apparent that it must be based upon the belief that this stipulation is aimed at the truth. In this instance the word "truth" is being used in an evaluative, rather than objective, sense.

If knowledge is considered to be socially determined then it may be suggested that

we can point to relations between the patterns of dominant values and the distribution of rewards and power, and the organisation of knowledge<sup>1</sup>

for a particular society. Thus, for example, a society which gives high priority to technological achievement would highly value knowledge of the physical sciences which is basic to technology. In this case knowledge of the human sciences, such as psychology and sociology, would assume lesser importance and may be considered to be subordinate to the physical sciences. That is the patterns of dominant values within a society may be correlated to the various categories of knowledge which together constitute the total knowledge of the society. A proposition concerning knowledge from any such category will have associated with it the particular set(s) of correlating values. The assessment of the truth or falsity of the proposition will involve testing against the truth criteria for this category, and these will be value-oriented. Thus a proposition will be assessed as true only if the values it connotes are in accordance with those associated with the knowledge category. The proposition would be true in the evaluative and not in the objective sense. Secondly, it may be suggested that there is a logical relation between 'mind' and 'knowledge'. But a logical relation would appear to be an expression of a belief which is held for a reason, this reason being that what is proposed is the truth. But if so, what are the criteria for truth, and if these are not available in an objective form, then, as before, 'truth' is being used in an evaluative sense. Problems arising in this connection, such as those pertaining to "truth theory", do not appear to be central to this dissertation.

For the Greeks these evaluations were encompassed within the doctrines of metaphysical and epistemological realism. For Hirst these doctrines are replaced by beliefs purporting to be aimed at the truth, and expressed through stipulation.

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<sup>1</sup>Young, M.F.D., Curricula and the Social Organisation of Knowledge, Brown, R. (Ed.), Knowledge, Education and Cultural Change, Tavistock, 1973, p. 352.

### Forms of Knowledge

Both the definition and the justification of Hirst's concept of a liberal education are dependent upon his thesis that knowledge is structured into forms. "By these is meant, of course, not collections of information, but the complex ways of understanding experience, which man has achieved, which are publicly specifiable, and which are gained through learning"<sup>1</sup>. It is maintained that by the sharing of conceptual schema, and its associated public symbols that such an understanding becomes possible and acquires objectivity in the sense that there is public consensus as to the meaning of symbols. That is, the objective expression of assertions relating to experience in terms of these symbols permits the development of public criteria against which the truth or validity of such assertions may be assessed. Continued and progressive assessments enable the probing and (public) description of more complex experiences, and thus the further development of knowledge. Hirst contends that it is only in terms of the symbols detailing the structure of such knowledge that emotional experiences or mental attitudes and beliefs become intelligible. Thus to acquire knowledge is to become aware of experience as being structured and organised, and made meaningful in a specific way. This structure does not, Hirst considers, arise because the mind has pre-determined patterns of functioning - to have a mind is to have experience organised according to conceptual frameworks.

Each developed form of knowledge is characterized by the following related distinguishing features:

- (1) They each involve certain central concepts that are peculiar in character to the form. For example, those of gravity, acceleration, hydrogen, and photosynthesis characteristic of the sciences; number, integral and matrix in mathematics; God, sin and predestination in religion; ought, good and wrong in moral knowledge.
- (2) In a given form of knowledge these and other concepts that denote, if perhaps in a very complex way, certain aspects of experience, form a network of possible relationships in which experience can

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 44.

be understood. As a result the form has a distinctive logical structure. For example, the terms and statements of mechanics can be meaningfully related in certain strictly limited ways only, and the same is true of historical explanation.

- (3) The form, by virtue of its particular terms and logic, has expressions or statements (possibly answering a distinctive type of question) that in some way or other, however indirect it may be, are testable against experience. This is the case in scientific knowledge, moral knowledge, and in the arts, though in the arts no questions are explicit and the criteria for the tests are only partially expressible in words. Each form, then, has distinctive expressions that are testable against experience in accordance with particular criteria that are peculiar to the form.
- (4) The forms have developed particular techniques and skills for exploring experience and testing their distinctive expressions, for instance the techniques of the sciences and those of the various literary arts. The result has been the amassing of all the symbolically expressed knowledge that we now have in the arts and the sciences.<sup>1</sup>

Thus, it is proposed that the domain of human knowledge can be differentiated into a number of logically distinct "forms", none of which is ultimately reducible in character to the others.

On the basis of these characteristics it is proposed that there are the following distinct disciplines or forms of knowledge: mathematics, physical sciences, human sciences, history, religion, literature and the fine arts, and philosophy.

Examining the first three characteristics, which provide the logical distinctions between the various forms, thus becomes a primary task.

In making these proposals it is clear that Hirst considers the primary elements of knowledge to be true propositions. And it is for this reason that his third criterion, namely the criterion for truth, becomes a central feature in discussions relating to the "forms of knowledge".

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 44.

Whilst it is claimed that each form of knowledge is unique, and that the various forms are irreducible to one another, there appear to be both concepts and logical elements which may be common to two or more forms. For example, the concepts of space and time belong to both human and physical sciences, and the laws of identity and non-contradiction would appear to be part of the logical structure of all forms of knowledge. But this proposal does not deny the uniqueness or irreducibility of any of the forms. Rather it supports the thesis that the forms are not independent of each other with regard to logical laws and fundamental concepts. This inter-relatedness of forms is stressed by Hirst.

... the dividing lines that can be drawn between different disciplines by means of the four suggested distinguishing marks are neither clear enough nor sufficient for demarcating the whole world of modern knowledge as we know it.<sup>1</sup>

Thus numerous conceptual and logical elements, as well as inter-relations involving these elements, may be shared between the various forms. But given that the fundamental elements of knowledge are true propositions, then these propositions can be distinguished from one another by the different kinds of truth criteria involved. Alternatively, every concept has criteria for its application, which include the truth criteria for any proposition in which the concept may be used.

It should be noted that in subsequent discussions of the article under consideration, Hirst makes the following comment:

If my original thesis has appeared to many too strong in claiming the existence of knowledge in all the seven different forms, it being doubted whether there are truth criteria in some of these areas, it has also been considered too strong in claiming unique concepts and logical structure for each form.<sup>2</sup>

The fourth characteristic suggested relates to the methodology to be employed in assessing true propositions. But, as Hirst comments later,

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 44.

<sup>2</sup>op. cit., p. 89.

These differences in methodology certainly mark out important differences in the pursuit of knowledge in the distinguishable forms, and are therefore most important in education and research. But they do not themselves add anything to the strictly logical distinctions which mark out possible forms of knowledge and I have therefore not referred to them in later writing which has concentrated solely on the logical distinctions .<sup>1</sup>

I now wish to briefly examine the truth criteria as they may apply to each of the suggested forms of knowledge, and to consider, in the first instance, that of mathematics. In the original paper it is stated that

Each form, then, has distinctive expressions that are testable against experience in accordance with particular criteria that are peculiar to the form .<sup>2</sup>

But

the statements of pure mathematics are not verified or falsified by reference to the external world.  
... Mathematics is essentially deductive .<sup>3</sup>

The difficulties highlighted by these conflicting statements are to some extent resolved if the following statement of Hirst and Peters is considered:

The truths of formal logic and mathematics involve concepts that pick out relations of a general abstract kind, where deducibility within an axiom system is the particular test for truth .<sup>4</sup>

Hence it is being claimed that the particular test against experience for mathematical propositions is deducibility. Given any deductive system in mathematics, which is necessarily deduced from a given set of axioms or postulates, it follows that these axioms cannot be considered to be propositions, but must be taken, along with their constituent concepts, as fundamental concepts of the form.

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 89.

<sup>2</sup>op. cit., p. 44.

<sup>3</sup>Woods, R.G. and Barrow, R.St.C., An Introduction to Philosophy of Education, Methuen and Co. Ltd., 1975, p. 31.

<sup>4</sup>Hirst, P.H. and Peters, R.S., The Logic of Education, O.U.P., 1970, p. 63.

According to Hospers

A given proposition within a deductive system (including a system of geometry) is analytic in relation to the premises  $p, q, r, \dots$  from which it is deduced: that is, If  $p, q, r, \dots$ , then  $x$  is analytic, it would be self-contradictory to deny it if the reasoning is valid.<sup>1</sup>

However, if the above conclusion that the propositions of a deductive system are analytic and knowable a priori is accepted, then this must be reconciled with Hirst's later statement which is made in defence of his position regarding the separatedness, and hence the truth criteria of his seven forms of knowledge, namely that

The concepts of mathematics and those of space, time and causality that Kant considers a priori, manifestly have enormous stability. Yet these are historical products, and we now recognize that they do not have the unlimited application in our experience that Kant thought ... They are no doubt a measure of the stability and near universality of very significant features in human nature and the human situation.<sup>2</sup>

In this case Hirst is not denying that the propositions of mathematics as deduced are analytic and knowable a priori. His concern is with whether or not it is possible to know the concepts of mathematics a priori. That is, the possibility of a universal deductive system of mathematics from which all mathematical propositions could be deduced is being questioned.

Whilst for mathematics the phrase "testable against experience" may have to be stipulated to mean "being deducible from certain axioms" in order to satisfy Hirst's third criterion for a form of knowledge, physical sciences have at their disposal refined experimental techniques and skills which enable predictions made on the basis of hypotheses to be tested. These procedures exemplify the notion of testability against experience for the physical sciences, and support the claim that they constitute a form of knowledge.

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<sup>1</sup>Hospers, J.H. An Introduction to Philosophical Analysis, R.K.P., 1967, p. 198.

<sup>2</sup>Hirst, P.H. Knowledge and the Curriculum, R.K.P., 1974, p. 94.

The third form of knowledge which Hirst proposes is that of the "human sciences". It is assumed that this would include psychology, sociology, anthropology, economics, and so on. Now it could be argued that these disciplines employ their own concepts, and to a lesser extent that each has a distinct logical structure. But the testing of hypotheses in these subjects against experience does not appear to be possible at this stage. Hirst's defense of his position in this case is not convincing. He states that

In distinguishing forms of knowledge, it is the forms of objective judgement that we now have which I have been seeking to separate. If the thesis is correct, there are some seven types of discourse in which objectivity is at present seriously claimed. In some of these this objectivity might be well articulated, and the agreement in judgements very precise and clear. In others, it might be much less precise and not well characterized. If the ways in which words can be related to experience expressing such judgements can be various and complex, and no one formula can be asserted as the only valid case, there is nothing surprising in that. We can only explore the claims that are made .<sup>1</sup>

Any proposal that literature and fine arts are forms of knowledge will give rise to difficulties relating to the application of the logical criteria of a form of knowledge similar to those difficulties already discussed for the human sciences. But, as before, it is the problems associated with the requirement for testability against experience which appear to be fundamental. In later writings Hirst seeks to eliminate any such problems by supporting a "propositional" theory of art, in which

the observable features (of art) are used as symbols, have meaning, can be seen as making artistic statements and judged true or false just as words and sentences can be used to make scientific statements .<sup>2</sup>

It is furthermore claimed that the term "statement" rather than "proposition" should be used in order that the particularity of these considerations may be emphasised. Such particularity, it is suggested, arises both from the nature of artistic knowledge and the criteria of

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 95.

<sup>2</sup>op. cit., p. 152.

truth which are to be applied to artistic statements. In contrast the judgement of whether or not a particular proposition relating to, for example, a particular painting was true or false will be made according to those general criteria of truth which apply to all propositions subsumed under a particular epistemological theory.

We are dealing with the claim that art is a unique form of knowledge and this claim is based on characterizing artistic knowledge as non-referential knowledge. Within this theory it is maintained that the symbols of art do not have meaning because they refer to objects, states of affairs, etc. which exist independently of these symbols and are known independently of these symbols. That is, the symbols are logically independent of the knowledge conveyed by them. In support of these proposals Hirst claims for the referential view of knowledge that

works of art are in this way about something that exists beyond themselves, and immense difficulties have come from trying to identify these existents ... Mathematical symbols have on this view been seen as referring to objectively existing mathematical entities .<sup>1</sup>

But on a non-referential view of knowledge meaning arises from the public use of symbols in particular ways. And the

very creation of a symbol system pre-supposes the idea of truth as to when the symbols apply and when they do not .<sup>2</sup>

And moreover truth

is a fundamental notion whose relationships to other fundamental notions can be indicated, but beyond that we can only say something about the conditions under which it can arise .<sup>3</sup>

Now if truth is to be considered as an absolute notion then we should ask in what way(s) there are logical parallels between making judgments as

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 155.

<sup>2</sup>op. cit., p. 158.

<sup>3</sup>op. cit., p. 159.



to whether a mathematical statement is true, or, for example, a moral statement is true. If possible, it would seem justifiable to consider art as a form of knowledge. Thus uniqueness of art as a form of knowledge would imply that statements in art would be irreducible to statements in any of the other forms of knowledge. Admittedly, the arts do presuppose other areas of knowledge just as science may presuppose a knowledge of mathematics, but this does not establish that works of art are reducible to other forms of statement anymore than science is reducible to mathematics.

Hirst extends this thesis of non-referential knowledge to religious and moral considerations when he suggests that the arts and religion are only forms of knowledge in so far as they

... involve expressions that have the features of true propositions. We certainly do not talk of the arts and religion as being cognitive, as providing distinctive types of knowledge. Whether this is justifiable and there is a form of knowledge in the arts, depends upon whether or not artistic works themselves have features parallel to those of propositions with related objective tests.<sup>1</sup>

But it is the notion of testability which remains questionable, particularly as it relates for example, to religious and moral knowledge or literature and the fine arts. In the case of religion what kind of 'experience' may be used to test statements such as "God exists" or "Man has an immortal soul"? Is this difficulty because religious statements require a different type of test, or is it because it is not possible to apply any kind of test for such statements?

It seems, therefore, that Hirst has not succeeded in establishing that 'knowledge' can be subdivided in the manner he suggests. This rejection of Hirst's proposals is supported by the following quotations:

- (a) it is an historical accident that some subjects are called disciplines ... we unthinkingly continue this tradition by learning to use the name 'discipline' only for certain subjects ...

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 87.

until pressed to consider whether some never-called disciplines are disciplines .<sup>1</sup>

- (b) We have surveyed some of the most prominent candidates for the role of characteristically historical mode of explanation: and we have found that they conform essentially to one or the other of our two basic types of scientific explanation .<sup>2</sup>
- (c) Thus words like "history", "physics" and "mathematics" are not just names of bodies of knowledge, in the sense of sets of true propositions; they are, if anything, the names of approaches to facts of generally different kinds. At a certain level, perhaps, we cannot ever say that; distinctions between subjects tend to break down, they become an administrative matter only, or a question merely of the differences in the background of interests on the part of those who are concerned with them .<sup>3</sup>

Finally it should be noted that whilst in 1965 Hirst considered the forms of knowledge to comprise mathematics, physical sciences, human sciences, religion, literature and the fine arts, philosophy and moral knowledge, in 1969 history was amalgamated with the human sciences<sup>4</sup>, and in 1970 history and the human sciences disappear with religion, literature and the fine arts, and moral knowledge remaining with the provision that "whether or not there are objective grounds for what is asserted (in religion) is ... a matter on which much more has yet to be said"<sup>5</sup>, and a new form makes its appearance as "awareness and understanding of our own mind and other people's minds"<sup>6</sup>.

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<sup>1</sup>Soltis, J.F., An Introduction to the Analysis of Educational Concepts, Addison-Wesley, Mass., 1968, p. 23.

<sup>2</sup>Nidditch, P.H. (Ed.), The Philosophy of Science, O.U.P., 1968, p. 54.

<sup>3</sup>Peters, R.S. (Ed.), The Concept of Education, R.K.P., 1967.

<sup>4</sup>Hirst, P.H., Journal of Curriculum Studies, Vol. 1, No.22, 1969, p. 151.

<sup>5</sup>Hirst, P.H. and Peters, R.S., The Logic of Education, R.K.P., 1970, pp 63, 64.

<sup>6</sup>op. cit., p. 64.

"Planning and practical conduct of a liberal education".

The final section of the article under consideration briefly outlines the real issues or themes in the planning and conduct of a liberal education. Within this section four such issues receive detailed consideration. These interrelated themes are:

- (a) the aims and desirable outcomes of liberal education;
- (b) the interrelational aspects of the various forms of knowledge;
- (c) the selection of syllabus content;
- (d) teaching methods and learning processes.

Now it is claimed that:

- (i) What is being sought is, first, sufficient immersion in the concepts, logic and criteria of the discipline for a person to come to know the distinctive way in which it 'works' by pursuing these in particular cases, and then sufficient generalization of these over the whole range of the discipline so that his experience begins to be widely structured in this distinctive way.<sup>1</sup>
- (ii) That to provide for the comprehensive development of the mind through the acquisition of knowledge samples of each form of knowledge must be chosen.
- (iii) It should be ensured that students come to understand the major achievements in each area of study.
- (iv) It will also include some indication of the relations between these forms where these overlap and their significance in the major fields of knowledge, particularly the practical fields that have been developed.<sup>2</sup>

It is from these claims that many major difficulties relating to the practical implementation of a liberal education, as proposed, emerge. The lack of specification by Hirst of objective criteria for the various selective processes essential to the above make it difficult to meet the above claims. For example, criteria for determining the level

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 47.

<sup>2</sup>op. cit., p. 48.

appropriate to both "sufficient immersion" and "sufficient generalization" are not detailed. As before, both the selection of suitable samples of each form of knowledge, and of the major achievements of each area of study entail selection criteria, and, as before, these are not given. In the absence of such objective means of selection, decisions relating to the selection of syllabus content will inevitably relate to a subjective evaluation of the various components of the syllabus, and hence a value-laden justification for their inclusion. Attempts to eliminate, or at least exercise some modicum of control on syllabus content decisions, are usually based upon attempts to achieve consensus amongst varying numbers of "subject experts" through, for example, committees and survey procedures. There is no logical basis on which it may be contended that such syllabus construction enhances the prospects of providing for, and indeed, achieving a liberal education. Alternative bases for selection mentioned by Hirst are historical growth, usefulness, demands of higher specialist education and psychological principles. However, whilst Hirst does not detail any of the criteria discussed above, he clearly recognizes that there is a need to do so, and indicates his support for research so focussed.

Throughout this section of the paper several references are made to the interrelated aspects of each of the various forms of knowledge. It is, for example, proposed that a syllabus should not be considered in terms of information and isolated skills, but on the basis of the inter-related aspects of the various forms. It is claimed that the study of these will lead, in the first instance, to the acquisition of the complex conceptual schemes and of the arts and techniques of each discipline, and, ultimately, to an understanding of experience in many ways. However, an additional requirement is that the formal curriculum should provide for "some indication of the relations between the forms where these overlap"<sup>1</sup>.

(i) What are the indicators of such relations?

(ii) Are they empirical or logical relations?

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 48.

- (iii) What are the basic concepts involved in such relations, and does this imply that there may be a set of basic concepts underlying all the forms of knowledge?
- (iv) What are some examples of such relations?

Apart from stating that these relations are particularly important when considering questions in moral education, Hirst does not give any examples of such relations. This is, perhaps, not surprising as at a later stage he comments that

we have as yet not begun to understand the complex interrelations of the different forms of knowledge themselves, for they do not only have unique features but common features too, and in addition one discipline often makes extensive use of the achievements of another <sup>1</sup>.

Whilst he admits the possibility of planning a liberal education around certain fields of knowledge which could be either theoretical or practical, Hirst claims that such a procedure has the inherent danger that the liberal education as such may be lost sight of and the field of knowledge pursued as an end in itself. This claim is made on the basis that the skills and techniques developed through such studies may be valuable, and perhaps essential, to that part of an individual's total education other than a liberal education. This danger appears to be particularly evident in cases where a practically-oriented field of knowledge is used as a basis for the curriculum. Indeed, if the arts and techniques associated with such a field are highly specifiable, then a liberal education based upon this field may easily become nothing more than vocational training.

Within this section of the paper very little comment is made in relation to the teaching of the various forms, and the associated learning by students. Perhaps the most significant comment is that

the belief that inherent logical structure of a discipline, or branch of a discipline, necessarily

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<sup>1</sup>Hirst, P.H. Knowledge and the Curriculum, R.K.P., 1974, p. 52.

determines exactly what and how the subject is to be taught and learnt <sup>1</sup>,

is frequently evident in syllabus planning. But such a belief reflects a confusion between the logical characteristics of a subject and the psychological processes involved in the learning of the subject. The latter are surely not prescribed in any temporal or other order by the logical characteristics of a subject.

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 52.

SECTION B

IMPLICATIONS

for the

SECONDARY CURRICULUM

SECTION BIMPLICATIONS FOR THE SECONDARY CURRICULUMThe Curriculum

As Hirst considers that the curriculum ought to be based upon the forms of knowledge, and, by his own analysis, the structure and organisation of knowledge is universal and hence not culturally founded, the secondary curriculum would be 'non-cultural' in the sense of being trans-cultural. Thus the knowledge content of the secondary curriculum is not dependent upon various cultures or sub-cultures, and in educating we must make it possible, for example, through secondary education, for all members of the society to have access to the same kinds of knowledge, i.e. to knowledge drawn from the various forms of knowledge proposed by Hirst. Hence for Hirst the traditional secondary curriculum with the inclusion of both moral and religious education would apparently suffice for all students attending schools at this level of education. That is, the aims of such a secondary education will be the same for all pupils regardless of cultural, social or psychological factors. But this is not to say that such factors are not relevant to the means of attaining these aims i.e. to content and teaching methods. Hirst's answer to the challenge that experience has demonstrated that it does not seem possible to attain the same aims with pupils of, for example, different intellectual abilities rests upon his contention that, as yet, we have not been able to learn, through empirical investigation, sufficient about the ways in which children learn, and hence how teachers should teach, to facilitate the universal attainment of such aims.

A further criticism of Hirst's proposals in relation to school curricula, and, it seems to me, to those which appear to include secondary-school curricula, may be based upon his insistence that not only must objectives be made clear before the notion of a curriculum can be considered, but that these objectives should be specified in such a manner that they may be given public symbolic representation, which is objective in the sense that it has agreed meanings. Even if the thesis that there are such forms of knowledge is accepted, all forms, except perhaps math-



ematics and the physical sciences, are not sufficiently developed in terms of their public symbolism to permit such specificity of objectives.

Also, should all secondary education be concerned with the development of the mind as is Hirst's contention? Should not, for example, schools be concerned with manual arts and practical activities? Hirst would not necessarily exclude such activities from the secondary curriculum, but rather than justify such activities in terms of their own educational worth he would see their inclusion as worthwhile in that all such activities could be considered as public expressions of knowledge, and hence that the students' participation in such activities would enhance their understanding of the forms of knowledge. This is not to suggest that Hirst would support the inclusion of elements in the secondary curriculum for purely vocational purposes. The inclusion of such elements could be justified only if their entailed activities were clearly based upon knowledge as expressed in its various forms. Thus, for example, woodwork may find a place in the secondary curriculum only if the activities entailed by the curriculum in woodwork are public expressions of knowledge drawn from one or more of the forms of knowledge. Hence woodwork activities which enhanced understanding in mathematics and the physical sciences would apparently be permissible. But it does seem unlikely that this is the sense in which such subjects are taught and that Hirst would be in favour of their retention in the secondary curriculum.

For Lawton<sup>1</sup> the curriculum ought to closely correspond with Hirst's forms of knowledge with the inclusion of

- (i) Mathematics;
- (ii) Physical and biological sciences;
- (iii) Humanities and the social sciences (including history, geography, classical studies, social studies, literature, film, T.V., and religion studies);
- (iv) Expressive and creative arts; and
- (v) Moral education.

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<sup>1</sup>Lawton, D., Class, Culture and the Curriculum, R.K.P., 1975

Whilst each of the above would not necessarily assume equal importance, integration is attempted by the inclusion of a sixth component which Lawton<sup>1</sup> refers to as "interdisciplinary work". And an essential feature of such a curriculum is that every student should reach a minimum level of understanding in each of the five forms or faculties indicated above. For

Without an insistence on a basic minimum understanding of the forms of knowledge which we regard as important, however, talk of equality of opportunity is no more than a sham and leads almost inevitably to non-academic courses for life-adjustment i.e. the kinds of courses planned for "less able" children, ostensibly to prepare them for the "world of work" and social relationships, but containing little or no worthwhile knowledge.<sup>2</sup>

Lawton's proposals for a "common culture"<sup>3</sup> curriculum are similar to those of J.P. White<sup>4</sup>. Whilst White also bases his curriculum on Hirst's forms of knowledge he not only does not regard all forms of knowledge of equal importance in the development of understanding, but also distinguishes between kinds of knowledge which are essential to the production of understanding and those which are not. Thus in his compulsory curriculum humanities is to precede science, for example, and painting pictures, learning foreign languages, writing poetry are optional rather than mandatory requirements.

Hirst's criticism that not all pupils are capable of benefiting from such a curriculum is not accepted by Lawton<sup>5</sup>, who argues that although this is a commonly held belief, it is, in fact, a retention from the nineteenth century division of education into elitist and elementary categories. In addition, it is argued that both psychological and sociological research have tended to accept this assumption as evidenced by their concentration on methods and explanations relating to failure rather than upon how children learn. Possible evidence for this emphasis may be

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<sup>1</sup>Lawton, D., Class, Culture and the Curriculum, R.K.P., 1973.

<sup>2</sup>op. cit., p. 89.

<sup>3</sup>op. cit., p. 90.

<sup>4</sup>White, J.P., Towards a Compulsory Curriculum, R.K.P., 1973

<sup>5</sup>Lawton, D., Class, Culture and the Curriculum, R.K.P., 1975.

the high priority given by educators, and supporting professional agencies, to the identification of norm-referenced criteria for the prediction of academic attainment, and by implication academic failure. Typical of such criteria are the various intelligence quotients which have been developed, and which were used prior to about 1960 for example, for selecting those students who could enter Tasmanian high schools. In contrast there appears to have been less concern with the development of criteria, which refer specifically to individuals and, in particular, to the factors pertinent to each of these individual's learning.

A further criticism which may be made of "Hirst-type" curricula, and which is discussed by Lawton<sup>1</sup>, is that it is not possible, in practice, to organize such a common curriculum to cater for a wide range of pupil ability. Lawton argues that such criticism should not relate to the curriculum but rather to the way(s) in which the necessary teaching on this curriculum should be organised. It is claimed, on this basis, that whole class teaching, as widely practised in Tasmanian secondary schools, does not facilitate such teaching, and that much more flexible arrangements are needed. "Open-space" teaching as occurs in Tasmanian schools is one such attempt at flexible organisation, although such organisation may be more usually justified in terms of the facilitation of socialization rather than the development of knowledge and understanding through the teaching of a common curriculum.

For Hirst specifying the knowledge to be contained within a curriculum entails the selection of representative samples from all of the forms of knowledge. For Bantock selection from all of the available knowledge of the particular culture is necessary. In either case the knowledge content of the curriculum so developed will be dependent upon the selection criteria used. If the selection criteria used to develop a common curriculum from the forms of knowledge were completely objective, in the sense that they were universally applicable and unchanging in time, then this curriculum would not be culturally dependent. On this basis Hirst's claims and those of Bantock with respect to the knowledge content of a common curriculum are inconsistent. It is, however, at least logically possible for a particular culture that the sets of selective criteria adopted by both

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<sup>1</sup>Lawton, D., Class, Culture and the Curriculum, R.K.P., 1975.

Hirst and Bantock are equivalent sets and therefore generate identical common curricula. Considered from within this culture the claims of Hirst and Bantock in this regard would appear to be consistent.

A further claim which may be made in relation to such a curriculum is that its adoption inevitably lowers standards and restricts the progress of the more intellectually-able pupils. Whilst Lawton admits that

In some unstreamed situations, where teachers try to carry on traditional methods of teaching, it is almost certainly true that standards fall and bright pupils are held back.<sup>1</sup>

he also claims that

The advantage of the common-culture individualized curriculum ... is that all pupils can be allowed to work at their own pace and encouraged to go forward as fast as they possibly can.<sup>2</sup>

In general, therefore, Hirst would support the retention of the traditional secondary curriculum patterns. This view is strongly rejected by G.H. Bantock who supports the development of a radically new curriculum pattern. Bantock's basis for such support rests upon his notion that the school curriculum should be a selection of the culture in which the school operates. In his *Notes Towards the Definition of Culture* (1948) T.S. Eliot proposed that the retention of the most worthwhile aspects of culture was dependent upon the existence of a small, leisured class. Bantock, in concluding from his analysis of culture that there should be two kinds of curricula, appears to support Eliot's proposals. These curricula are

- (i) a high-culture curriculum for the small minority of students, who could be classified as academically-minded, and
- (ii) a totally different curriculum with a substantial non-literary content for the masses.

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<sup>1</sup>Lawton, D., Class, Culture and the Curriculum, R.K.P., 1975, p. 94.

<sup>2</sup>op. cit., p. 94.

But whilst the difficulties in defining a Hirst-style curriculum are related to the lack of development of some of the forms of knowledge and an associated lack of specificity of selection criteria, Bantock's proposals are at least open to two somewhat similar criticisms. Firstly, his ideas clearly rest upon the assumption that it is possible to divide 'culture' neatly into 'high' and 'low' categories and, secondly, he appears to be committed to the notion that it is possible, and presumably desirable, to allocate human beings or groups of human beings to two corresponding and rigid categories.

The reality is, I suggest, much more complex: the distinction between high and mass culture is difficult to maintain consistently, and there is a great deal of overlap,<sup>1</sup> and

Bantock's main fault consists of an inadequate analysis of culture, and especially that part of culture referred to as worthwhile knowledge.<sup>2</sup>

Thus, as is the case for curricula organised according to Hirst's analysis of knowledge, definitional difficulties arise through problems associated with the lack of specificity of the categories proposed for the structuring of knowledge for the curriculum, and with the selection of representative elements from these categories.

For Bantock, Hirst's forms of knowledge are a consequence of the development of a high-culture, and the curriculum should not, therefore, as Hirst proposes, be determined by such forms and be common for all. For Hirst, Bantock's proposals for different kinds of curricula for different cultural groups indicate his failure to understand the transcultural nature of the fundamental structure of knowledge.

However, Raymond Williams in "Culture and Society" (1958) and "The Long Revolution" (1961) proposes that, on the basis of his historical analysis of Western culture, there should be a common curriculum for children up to the age of sixteen years. He states that

I would put down the following, as the minimum to

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<sup>1</sup>Lawton, D., *Class, Culture and the Curriculum*, R.K.P., 1975, p. 15.

<sup>2</sup>op. cit., p. 16.

aim at for every educationally normal child.

- (a) Extensive practice in the fundamental languages of English and Mathematics;
- (b) general knowledge of ourselves and our environment, taught at the secondary stage not as separate academic disciplines but as general knowledge drawn from the disciplines which clarify at a higher stage i.e.
  - (i) Biology, psychology;
  - (ii) Social history, law and political institutions, sociology, descriptive economics, geography including actual industry and trade;
  - (iii) physics and chemistry;
- (c) history and criticism of literature, the visual arts, music, dramatic performance, landscape and architecture;
- (d) extensive practice in democratic procedures, including meetings, negotiations, and the selection and conduct of leaders in democratic organisations. Extensive practice in the use of libraries, newspapers, magazines, radio and television programmes, and other sources of information, opinion and influences;
- (e) introduction to at least one other culture including its language, history, geography, institutions and arts, to be given in part by visiting and exchange.<sup>1</sup>

Thus for Williams ideological and economic changes are seen as producing changes in the culture of a society. Secondary education systems, it is proposed, have yet to incorporate such changes and, indeed, "the logic of the situation is such that certain further cultural changes ought to be anticipated by education".<sup>2</sup> In proposing the above common curriculum Williams recognizes the possibility that education, and in particular secondary curricula, may still be strongly influenced by class-based curricula traditions. Such an influence may be indicated by his emphasis upon each child acquiring a minimum level of competence in the use of the languages of mathematics and English as well as gaining a wide general knowledge. This emphasis within the curriculum shows the influence of traditional curricula for the "working-class". At the secondary level such curricula, at least in the early period of their use, would probably have reflected the vocational needs of the members of this class. Bantock is not making the claim that education is to be determined by cultural background but that a common curriculum selected from a common culture may give rise to an education system which will produce a better society. This claim

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<sup>1</sup>Lawton, D., Class, Culture and the Curriculum, R.K.P., 1975, pp. 23, 24.

<sup>2</sup>op. cit., p. 24.

contrasts clearly with Hirst's proposals which deny the possibility of cultural influences on the curriculum and justify a common curriculum, however, not in terms of a common culture, but on the basis of a universal and complete structuring of knowledge and upon the necessity of knowledge and understanding for the development of a rational mind.

### Curriculum Objectives

Previous considerations of Hirst's views on the concept of a liberal education and on the structure of knowledge imply that a liberal secondary education would have the development of the characteristics of a rational mind by each of its pupils as the fundamental objective.

If the acquisition of knowledge is logically basic for the development of a rational mind, and if the domain of knowledge consists of a limited number of different autonomous forms, the importance within the curriculum of the pursuit of knowledge is seen to be considerable and the significance of restricting the curriculum to certain areas carries inescapable results for the pupils.<sup>1</sup>

However, adequate educational, and hence curriculum, planning would seem to demand not only the clear statement of general aims, and their translation into specific objectives, but also the description of each of these objectives in terms of the public forms of experience associated with them and of the relations between the objectives under consideration.

If by the term "curriculum" we mean a programme of activities which is planned so that pupils will attain by learning certain specifiable ends, then there cannot be a curriculum without objectives. That is, on the basis that "planning" pre-supposes "having objectives", planning is logical nonsense until the objectives have been specified. In supporting this view and condemning the use of "free-activity" periods in schools Hirst states

It is, I think, therefore pure deception to regard such an activity as part of a curriculum if it is not structured to obtain certain specified objectives. If one re-defines what is meant by a curriculum to include this sort of random pursuit, that is to win only a verbal battle.<sup>2</sup>

On Hirst's view, then, the logically most fundamental objectives of all are those of the cognitive kind, and out of these all others must be developed. But there can be no experience or knowledge without the acquisition of relevant concepts, and these concepts must be shared in the

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, pp. 27, 28.

<sup>2</sup>op. cit., p. 4.



public world. Without such sharing we cannot attain objectivity. In addition to the sharing of concepts there must be public tests and criteria, and public agreement on the criteria for what is claimed to be known or understood. Hence objective judgements are not possible without a body of agreed concepts. The concepts of mathematics and those of time and space have enormous stability in the sense that they have apparently unchanging application in our experience, and have near universality in the width of this application. Judgements made within such relatively stable and universal conceptual schemes approach objectivity. Complete objectivity of judgement is attainable only when the body of agreed concepts within which the judgement is to be made are unchanging with time and universally applicable. Such judgements themselves are not matters of further agreement. The "basic structure of objectives we are after must be one within that body of concepts and related tests which man has so far developed".<sup>1</sup> It is on this basis that Hirst's analysis implies rejection of the description of educational ends in terms of such notions as pupil "growth", "interests" or "needs". Such notions are global in their intentions in relation to pupils and, as well as presupposing certain standards and norms, cannot be publicly defined in terms of their exact content.

A further categorization of educational objectives which has recently enjoyed a considerable measure of acceptance in Tasmanian secondary schools is that proposed by B.S. Bloom<sup>2</sup> and his colleagues in the "Taxonomy of Educational Objectives", and, in particular, the categorization which is applied to the cognitive, rather than the affective and psycho-motor domains. Included in the cognitive domain are, for example, such categories as a knowledge of specifics, which includes knowledge of particular items of information, of conventions, of terminology, of classifications, and so on. In addition, skills and abilities related to comprehension, translation, application, synthesis and analysis are proposed as categories of this domain. Now it seems probable that Hirst would approve of such an attempt to classify knowledge in that it provides for a diversity of possible objectives all related to the acquisition of knowledge and in so doing lessens the possibility that objectives will be solely concerned with the

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<sup>1</sup>Peters, R.S., The Logic of Education, R.K.P., 1970, p. 63.  
& Hirst, P.H.

<sup>2</sup>Bloom, B.S., et al, Taxonomy of Educational Objectives, McKay Co. Inc., New York, 1956

learning of facts. Such a categorization may also foster an awareness that objectives must, according to Hirst, be specifiable in terms of public modes of experience. But although this taxonomy may assist in the listing of educational objectives, it does not clarify the nature and structure of such objectives. It does not, for instance, clarify what is involved in a child understanding a simple proposition such as "Sir John Kerr is Governor-General of Australia". Not only, in this case, must the child be able to identify Sir John Kerr, but he must also understand what is meant by the term "Governor-General". What is more, if the child is to come to know this proposition he must surely know whether or not it is true. An analysis of the concept of knowledge, which is often used, is that a person A knows that a given proposition is true if three conditions are satisfied. These are

- (i) The truth-condition: p is true;
- (ii) The belief-condition: A believes that p is true;
- (iii) The evidence-condition: A has adequate evidence for believing that p is true.

Bloom's analysis does not consider these, or any, necessary conditions for having knowledge. Hirst recognizes the first of the above conditions when he states that

it is quite impossible to learn facts, to know them as facts, without acquiring the basic concepts and the criteria for truth involved.<sup>1</sup>

This is not to say that, in this case, a secondary education should be concerned only with intellectual development, but that all other forms of development with which education may be concerned are fundamentally dependent upon a student's progress in the development of rational understanding. Thus, Hirst suggests,

although all the possible or justifiable objectives of education are not themselves explicitly developments of mind, it is, I suggest, by their connection with such specific developments that other objectives

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 19.

have their place and their justification in education at all .<sup>1</sup>

Likewise it could be maintained that any curriculum which underplays the value of cognitive objectives will not only be limiting students in their cognitive development but will also impede those developments which presuppose cognitive achievement. On these grounds Hirst would appear to reject the anti-intellectualism which characterizes some contemporary movements in education. This position is maintained irrespective of the ability of the child and against any suggestions that we should retreat for the academically less-able students to curricula which emphasise arts and practical activities. For all students Hirst contends, as he argues in his paper entitled "The nature and structure of curriculum objectives"<sup>2</sup>, curricula must be planned to enable the mastery, by the students, of the appropriate symbolism of each of the forms studied. What, therefore, becomes crucial for education, and in particular for secondary education, is the selection of the range of the cognitive objectives to be included in the curriculum.

However, Hirst's proposals do not entail any principles whereby such a selection is facilitated. Consequently such principles have to be imported from outside structures and criteria put forward by Hirst. Perhaps, in broad terms, the principle to be imported is, in question form, "To what ends is the pursuit of this activity desirable?" That is, a utilitarian principle is invoked. In framing curricula one cannot simply ignore society, particularly when one considers the extent to which practical problems, such as the management and use of resources, may influence the choice of curriculum objectives. A curriculum may be considered to reflect an educational theory to the development of which not only philosophers, but historians, psychologists and sociologists can contribute. Curricula are surely sensitive to time and content and there is, on this view, no absolute and externally valid curriculum. That is,

Ultimately curriculum decisions, like educational decisions generally, rest upon individuals' systems

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 19.

<sup>2</sup>op. cit. pp. 16-29.

of value and these, varying from time and place, will bring about variations in the curriculum practices based on them .<sup>1</sup>

In discussing curriculum objectives for secondary education some consideration of the recent changes in curriculum content and emphasis as demonstrated by modifications made by the Schools Board of Tasmania to subject syllabi, the range of subjects offered and the assessment procedures for these, would seem to be of interest.

The Schools Board of Tasmania, constituted in 1944, was required, in accordance with the Education Act, 1944, to devise and administer new systems of awarding school certificates for secondary education. In 1946 the Board instituted a "four-year course of academic secondary education leading to the Schools Board Certificate".<sup>2</sup> This certificate demanded a level of achievement in "basic and optional subjects after a four-year course of general education"<sup>3</sup>. At this stage secondary schools could choose between a school-based, but state supervised, accrediting system and a state-wide system of external examinations.

In 1960, in order to accommodate for the impact of the change of the previously academically selective high schools to secondary schools with a comprehensive intake of pupils, measures to provide for a wider range of certification by the Schools Board of Tasmania were introduced. This consisted of a basic certificate awarded to any student who completed an approved course and passed at least one subject.

This certificate was endorsed "B" for those who gained at least seven points, or endorsed "A" for those who gained at least seven points, including at least one point in English and passes in two two-point basic subjects .<sup>4</sup>

Points were to be awarded according to the subject and level of pass obtained.

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<sup>1</sup>Woods, R.G. and Barrow, R.St.C., An Introduction to the Philosophy of Education, Methuen, 1975; p. 41.

<sup>2</sup>Schools Board of Tasmania, School Certificate Manual for 1976, 1975, p. 5.

<sup>3</sup>op. cit., p. 5.

<sup>4</sup>op. cit., p. 5.

In 1969 the Schools Board of Tasmania conducted, for the first time, the Higher School Certification Examination, this examination replacing the Matriculation examination as previously conducted by the University of Tasmania. At the same time the Schools Board Certificate was replaced by the School Certificate.

The subjects for this certificate may be taken at various levels and a wide choice is available to cater for different levels of ability and interest ... The certificates will be awarded as a result of a system of regional moderation which has been developed to ensure comparability of standards between schools.<sup>1</sup>

Now the original four-year courses as proposed by the Schools Board of Tasmania in 1946 gave status to both "basic" and "optional" components of this course. Whilst the basic aspect of such a course may appear as evidence for a universally valid curriculum for all secondary study it seems likely that it did not arise from the recognition of any particular epistemological theory. Social demand, particularly for basic literacy and numeracy, strengthened by a heritage of belief in the value of achieving standards in certain areas of study appears to be a more probable justification for the inclusion of a basic component in all curricula. That is, the basic subjects included in the secondary curriculum reflected social demand rather than any fundamentality of knowledge structure. The inclusion of "optional" subjects in the curriculum probably indicated a recognition of practical activity as part of education. Whilst Hirst may agree with the inclusion of such activity in the curriculum for him the justification for their inclusion would have to be based upon them being designed to enhance the students' understanding of the forms of knowledge. However, it does not seem apparent that any such justification was employed, the inclusion of such options being based upon a recognition that children may be more easily motivated and may learn more readily, in some instances, through practical activities. Typically such optional subjects included Mathematics (Advanced), German, Latin, Art, Home Arts and Crafts, Shorthand, Commerce and Typing. The differentiation of these into academically worthwhile and socially useful categories is obvious evidence of two strands of social demand - the first being very much concerned with the preservation of standards and the second

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<sup>1</sup>Schools Board of Tasmania, School Certificate Manual for 1976, 1975, p. 5.

supporting an economically-based society.

Furthermore, the Schools Board was at this stage concerned with a standard level of achievement for general secondary education which was to be measured according to subject-based standards. Details obtainable from manuals published by the Schools Board during this period do not suggest that the criteria by which such standards were measured were directly related to the fundamental concepts or internal logic of the particular subjects. Perhaps the greatest influence in the selection of these criteria was the order in which knowledge and standards had historically developed in the subject.

The wider range of certification introduced in 1960 may be seen as an attempt to recognize the wider range of intellectual ability and the diversity of pupil interests now found in the recently established comprehensive high schools.

The introduction of school-based assessment in 1969 would appear to be an acknowledgment that curricula should, at least to some extent, be socially dependent. Whilst the formal curriculum of high schools was necessarily composed of an amalgamation of subjects selected from a range of subjects prescribed by the Schools Board of Tasmania, teachers within these schools were encouraged to develop their own interpretation of these subject syllabi, and, consequently, to develop assessment procedures based on these interpretations. In this way attempts to recognize both fundamental structural features of knowledge and social factors in the determination of curricula were made. The continuation of such attempts and the failure to recognize Hirst's proposals may be evidenced by statements relating to curriculum objectives for secondary mathematics as given in the School Certificate Manual for 1976. It is stated that

All mathematics taught at the secondary level must be based upon the collection of concepts and experiences which a pupil has amassed at the primary level.<sup>1</sup>

Whilst this statement may be seen as an acknowledgement of a cumulative knowledge structure for mathematics it is not clear as to whether or not

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<sup>1</sup>Schools Board of Tasmania, School Certificate Manual for 1976, 1975, p.125.

this structure corresponds to that arising from the logical order of mathematics. The statement may, for instance, be based upon the assumption of a particular learning theory which specifies that mathematical concepts must be acquired in a given order.

Hirst's requirement that mathematics as a form of knowledge must have a characteristic logical structure is supported by the statement that

At all levels the emphasis should be on presenting the subjects as a logical arrangement of knowledge gained through scientific enquiry.<sup>1</sup>

But if such knowledge is to be gained through "scientific enquiry" then it may be assumed that the skills and techniques, which Hirst maintains are characteristic of science as a form of knowledge, may be used to acquire knowledge in mathematics. This assumption would contradict Hirst's contentions relating to the irreducibility of the forms of knowledge.

On the basis of his analysis of knowledge, and his interpretation of this analysis in relation to curriculum objectives, Hirst proposes that a universally valid knowledge curriculum is possible. Such a curriculum could be stated in terms of a set or sets of objectives, which were universally applicable to all students regardless of such factors as, for instance, their academic ability and social backgrounds. Such a curriculum is evidently not envisaged for mathematics as it is suggested that the end-points of the level I syllabus should be chosen to suit the needs and abilities of these students. Hirst may, however, reject the assumption in this suggestion that different pupils have different needs and that the content and objectives of the curriculum should be determined by the abilities of those who are studying the curriculum. Indeed he may maintain that the development of the mind through the acquisition of knowledge is a universal need of pupils. Further opposition to a universal curriculum is expressed in the statement that

The end-points to be reached by the pupil should be adjusted to suit his interests, maturity, rate of

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<sup>1</sup>Schools Board of Tasmania, School Certificate Manual for 1976, 1975, p. 125.

learning and his ability to make abstractions and deal with complex ideas .<sup>1</sup>

It is further suggested that the curriculum in mathematics should emphasise

... certain knowledge, skills, understanding and methods which support the learning of other disciplines, and provide for the social competence of future citizens .<sup>2</sup>

Whilst Hirst may not reject the possibility of knowledge gained through the study of one form of knowledge being applied to the study of another form, his rejection of any concept of a transfer of training involving the development of abilities and skills, which are applicable to several different forms, suggests that he would not be in agreement with the proposed emphasis.

But perhaps the clearest recognition of Hirst's analysis is given in the following quotation which refers to the objectives for a trial syllabus in mathematics:

.... to acquaint pupils with the unique features of mathematics which identify the subject as a discipline in its own right and to see that the fundamental patterns of thinking involved in this subject make a contribution to the whole of intellectual development .<sup>3</sup>

Whilst the above may indicate that there is not complete recognition of mathematics as a unique form of knowledge, an examination of the aims and objectives given for other subjects as quoted in the School Certificate Manual shows very little evidence of other forms of knowledge being considered. On this basis it may be proposed that the curriculum for Tasmanian secondary schools is not based upon Hirst's analysis of all knowledge into autonomous forms, nor, indeed, would it appear to be based upon any consistently applied analysis of knowledge relating to a universal structuring of knowledge.

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<sup>1</sup>Schools Board of Tasmania, School Certificate Manual for 1976, 1975, p. 125.

<sup>2</sup>op. cit., p. 143.

<sup>3</sup>op. cit., p. 145.



### Curriculum Integration

One trend in recent curriculum developments appears to be the movement towards "integrated" curricula. Such a movement apparently complements curriculum proposals such as those advanced by G.H. Bantock wherein cultural factors other than those pertaining directly to knowledge are acknowledged. Consequently, social aspects of the culture become important in the curriculum. Conversely, curricula based upon Hirst's concept of autonomous forms of knowledge would not be considered to be "integrated". But when is a curriculum integrated?

Many secondary schools in Tasmania still retain curricula which are organised under different subjects with each such subject being taught for its own ends. Although this practice may simplify overall school management, it is not necessarily educationally desirable for the students concerned and could not be considered to provide an integrated curriculum. Nor should the notion of the integration of a curriculum be confused with those ideas underlying the "integrated day" as featured in some infant schools. The fact that pupils plan the time span for, and order of activities occurring within such a day, does not necessarily imply an integrated curriculum.

Moreover, if, as Hirst claims,

The whole thesis of the irreducibility of different forms of knowledge involves the claim that their concepts and truth criteria are of fundamentally different kinds and their unification under concepts of one kind is denied.<sup>1</sup>

then it is logically possible to provide for an integrated curriculum within a particular form by organising such a course around a particular set of concepts from that form. To provide for an integrated curriculum encompassing all forms of knowledge would entail proposing a unity of knowledge unified by a fundamental set of concepts common to all forms. Clearly Hirst's thesis does not include such a proposal, but this does not deny that there are logical relationships between the various forms

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1975, p. 137.

of knowledge. In many cases the concepts of one form may pre-suppose those of another form and in this sense there are logical relationships between these forms. For instance, religious and moral concepts may pre-suppose concepts of the physical world and hence it may be contended that there are logical relationships between, say, the physical sciences and moral and religious knowledge. Thus the development through studies in religion of a concept of God may be dependent upon the prior development in the physical sciences, for instance, of those concepts which may underlie a concept of the universe. This does not mean, however, that the concepts of the latter forms of knowledge are in any way reducible to those of the physical sciences. Similarly that true statements in one form pre-suppose those in other forms does not mean that these types of truths are mutually reducible. For instance, the truth of statements about a person's state of mind may pre-suppose the truth of statements about his physical health. According to Hirst this does not mean that there are common criteria through which the truth or falsity of statements in psychology, as a human science, and statements in physiology, as a physical science, may be assessed.

The above notion of the irreducibility of forms, and the entailed consequences of this notion, is itself dependent upon the assumption that both the range and identity of the autonomous forms of knowledge has been undeniably established. Hirst bases this necessary assumption upon the claim that "concepts and truth criteria of a fundamentally different kind do not seem to be readily forthcoming".<sup>1</sup> However, in this context Hirst does not advance convincing evidence or logical argument to support this claim and, in the light of his admission that there are different "levels" to which the various forms have so far developed, the counter-claim that it is this differentiation between the forms that has so far precluded the identification of an underlying set of truth criteria and concepts around which an integrated curriculum could be established, may have equal validity.

Those who oppose Hirst's concept of the curriculum, and, in particular, its implications for the secondary curriculum, may tend to regard such curricula as identical with the subject-oriented programmes current in

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1975, p. 138.

many Tasmanian secondary schools. On this basis they may allege that the structure of knowledge as proposed is not a logical necessity but an historical anachronism, and that what is needed is a radically new organisation of curricula which enables pupils to be educated in the context in which they live. Such a point of view is strongly represented by Michael F.D. Young when he insists that:

Starting with certain a priori assumptions about the organisation (or forms) of knowledge (Hirst, 1965) the philosophers focus their criticism either on new topic-based syllabi which neglect these 'forms of understanding', or on new curricula for the so-called 'less-able' or 'Newsom child', which, they argue, are consciously restricting such children from access to these forms of understanding which in the philosophers sense are 'education'. The problem with this kind of critique is that it is based on an absolute conception of a set of distinct forms of knowledge which correspond closely to the traditional areas of the academic curriculum, and this justifies, rather than examines, what are no more than the socio-historical constraints of a particular time.<sup>1</sup>

Furthermore, it may be argued, that the concept of an integrated curriculum necessitates that the life and experience of a person ought to be "developed as a unity", and not in the compartmentalized manner which Hirst's position implies. Such arguments may propose, therefore, through reference to "life and experience" and to persons developing as a unity, that both social factors and the "personal autonomy" of the individual are relevant to curriculum design. That is, if curriculum integration is possible, then the integrative aspects may be both social and/or personal. It is important that both such aspects be given further consideration.

Hirst's analysis refers to one possible universal structuring of knowledge. It is often argued, on the assumption that no such universal structure is possible, that possible knowledge structures must be culturally bound. Clearly the extreme position of such an assertion would be a thesis in favour of the total relativity of all organisations of knowledge. In this case education may be considered to be "a selection and organisation

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<sup>1</sup>Young, Michael F.D., *Curricula and the Social Organization of Knowledge*, as in Brown, R. (ed.) Knowledge, Education and Cultural Change, Tavistock, 1973, p. 343.

of the available knowledge at a particular time".<sup>1</sup> That is, knowledge is socially derived and contextually dependent.

Now it seems that, in most cases, the justifications for such analyses are based upon the notion that societies change through the progressive differentiation of the role structures within them. The social distribution of knowledge is altered and grows more complex as a result of this differentiation, and consequently there is an increase in specific knowledge related to the more specialized role structure and a corresponding diminution of the more general knowledge which is significant to members of the society irrespective of their particular role within that society. For each such system

specializations may be seen as a culturally defined system of knowledge into which practitioners are socialized so that to a greater or lesser extent they come to use the same styles of thinking and to hold the same criteria of truth.<sup>2</sup>

Thus it may be argued that academic subjects become established in the form of social systems and that the modes of thought for each such system will be based upon one or more of the existing systems of knowledge. If there are different modes of logic which are characteristic of each such system, then different practitioners will have different perceptions of the contemporary state of knowledge at a given time. Moreover it is postulated that each such specialization usually evolves what has been called a "subject-specific linguistic register".<sup>3</sup> Each such system appears to have two possible functions. In the first instance the register permits the identification of a speaker with a particular social structure. It also enables the communication of the thought processes which characterize each such structure,

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<sup>1</sup>Young, Michael F.D., Curricula and the Social Organisation of knowledge, as in Brown, R.D. (ed.) Knowledge, Education and Cultural Change, Tavistock, 1973, p. 343.

<sup>2</sup>Berger, P.L. and Luckman, T. The Social Construction of Reality, Allen Lane, Penguin Press, 1967, pp 56, 57.

<sup>3</sup>Young, Michael F.D., Curricula and the Social Organisation of Knowledge, as in Brown, R.D. (ed.) Knowledge, Education and Cultural Change, Tavistock 1973, p. 343.

and hence ensures that access to certain social structures is not possible until this code has been learnt.

Such registers change with time and, it may be proposed, as societies create more complex patterns of knowledge and behaviour, social positions evolve with

the power to determine decisive socialization processes, and therefore the power to produce reality. Those who fill such positions manage the social pool of knowledge determining or legitimating how much and which specific types of knowledge are available to various categories of persons in that society .<sup>1</sup>

Whereas for Hirst the integration of a curriculum is entirely dependent upon logical relationships between the various autonomous forms of knowledge, the integration of a curriculum based upon the thesis that knowledge is "socially derived", would appear to be dependent upon those determinations or "selections of knowledge" carried out by the "managers" of the society for each of the particular categories of people that have been identified in that society. Under such conditions education is

a selection and organisation of the available knowledge at a particular time .<sup>2</sup>

The integration of such curricula will depend upon the criteria used for the necessary selections of knowledge by the managers encompassing socially-based aspects which may be shared by all members of that society. At the most elementary level such selections would concern

pragmatically necessary knowledge that is needed for ordering social interaction that includes the rules governing etiquette and proper dress, so prominent in the manifest and later curriculum of schools .<sup>3</sup>

But the possibility of finding such a social basis which is common to all

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<sup>1</sup>Berger, P.L. and Luckman, T. The Social Construction of Reality, Allen Lane, Penguin Press, 1967, pp. 56, 57.

<sup>2</sup>Young, Michael F.D. Curricula and the Social Organisation of Knowledge, as in Brown, R.D. Knowledge, Education and Cultural Change, Tavistock, 1973, p. 343.

<sup>3</sup>Musgrave, P.W., Hughes, P.W. (Ed.), Social Factors Affecting the Curriculum, as in The Teacher's Role in Curriculum Design, Angus and Robertson, 1973, p. 15.

members of the society, and which forms a basis for curriculum integration, necessarily and ultimately depends upon the identification of a common set of values for all who belong to that particular society. Given such a set of values the manager, or curriculum planner, must then be able to select those items of socially generated knowledge which exemplify these values. Such selection necessarily requires an educational theory linking values with knowledge. Such a theory forms the basis for the justification of a curriculum so developed. Unless a naturalistic theory of values can be developed, such an educational theory may remain speculative in the sense of not being based upon empirical evidence (or, as for a totalitarian state, rest upon state-enforced systems of values). In this sense the above proposals have the same inherent difficulties as those embodied by Hirst's assertions in relation to curricula. That is, both proposals are contingent upon educational theories which indicate worthwhile knowledge. For Hirst all knowledge encompassed by the "forms of knowledge" is of value, whilst for the socially-based curricula knowledge is of value if it reflects common values of the society.

But, basing curriculum integration on logical relationships between forms of knowledge and justifying the curriculum in terms of the value of the pursuit of rational knowledge would appear to be more desirable than basing integration upon selected societal values. The selection of a set of values and the consequent emphasis on these values through the integrated curriculum to the possible exclusion of all other values would appear to lend itself to the possibility of indoctrination. Such indoctrination would probably be supported by the various systems of sanctions and rewards operating within the community as these would have probably been based upon the set of values originally accepted.

Perhaps the fundamental difference between education and indoctrination is that the latter tends to treat all rules as inherent within the structure of the society. What is taken to be a fact or a principle, or presents as a person or work to be admired, is placed beyond the reach of rational criticism. For education, on the contrary, criticisms are welcomed and there is a preparedness to admit that answers to questions and criticisms are not always known. This is not to propose that in indoctrination understanding, in the sense which Hirst proposes on the basis of his analysis of knowledge, is therefore excluded. The attainment of objectivity in

understanding may be made more difficult through indoctrination but is not necessarily prevented. In brainwashing the possibilities of such objectivity are eliminated through the confusion of mental processes. A rejection of Hirst's analysis would not, therefore, ensure indoctrination, but would work against the development of the mind through the acquisition of objective knowledge.

On this basis the difficulties to be encountered in developing a socially-based integrated curriculum would seem to include, at least, the following:

- (i) assumptions of social differentiation and knowledge development;
- (ii) the concept of a society;
- (iii) the identification of common social values;
- (iv) the selection of such values about which the curriculum is to be integrated;
- (v) the proposal of an educational theory linking these values and knowledge;
- (vi) the subsequent selection of curriculum knowledge;
- (vii) the possibility of indoctrination occurring.

### Conclusion

This dissertation has been concerned with a discussion of Hirst's paper entitled "Liberal education and the nature of knowledge" and with the implications of this paper for the secondary curriculum. In a subsequent comment on this paper Hirst states that

The concept of 'liberal education' I outlined on the basis of the forms of knowledge, was explicitly stipulative, it being suggested that knowledge and understanding alone should be the aim but across the range of the different forms of knowledge we have .<sup>1</sup>

But if knowledge and understanding alone are to be considered when determining the objectives of an education, then only objectives which are intellectual may be considered. As non-intellectual objectives, such as physical education, would not be part of a liberal education, then a liberal education may not provide for the total education of the child. Even the intellectual skills included in a liberal education based entirely on the forms of knowledge would be limited. Linguistic skills, for example, would be included only for their value in assisting with the acquisition of knowledge from the different forms. For this reason the study of a second language would be precluded. A further weakness of this definition of a liberal education may be that, although a study of moral knowledge would be included, this study does not necessarily ensure any commitment by pupils to act morally.

The analysis of knowledge into autonomous forms given by Hirst in the paper being considered provides for a classification of knowledge under labels such as "mathematics" and "the physical sciences". Each such label denotes a set of propositions which are true by assessment against those truth criteria characteristic of the particular form. These propositions are related according to the specific conceptual and logical structure of that form of knowledge. The denotations of these labels may, however, be extended through common usage to cover additional sets of experiences, skills, attitudes and values. Thus the meaning of the phrase "the physical sciences" may be entirely different when considered in the context of the

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 96.



curriculum than when the programme of a science faculty in a university is being discussed. Similarly the denotations of words, such as "physics", which are used to describe sub-forms may be contextually dependent. Whilst, for example, "physics" may refer only to the conceptual and logical propositional structure of this sub-section of the physical sciences, it may also include skills, methods, attitudes and values which can be associated with a concern for, and an understanding of, knowledge in this area. Any proposal to include the study of physics in the secondary curriculum would, therefore, generate questions relating to not only whether or not the propositional structure of the sub-forms of physics should be studied, but also as to what width of interpretation should be given to the word "physics". That is, even if Hirst's analysis of knowledge into forms is accepted, it may not be possible to completely specify a secondary curriculum solely in terms of its knowledge content.

It would seem difficult to separate teaching pupils an understanding of knowledge from a particular form of knowledge from teaching those skills, attitudes and values which may be associated with the knowledge being taught. The teacher of physics may seek to encourage particular attitudes and values by his pupils with respect to this subject. These may, for instance, include attitudes of respect for, and the valuing of, logical reasoning, experimental rigour and precision of measurement. Such attitudes and values would appear to be culturally dependent. This dependence is, perhaps, illustrated by the different attitudes and values which appear to have been associated with the mathematics of the ancient Greek civilisation and that of ancient Egypt. For the former mathematics seems to have been valued for its inherent logical structure, whilst for the latter mathematics was prized for its social utility. That is, whilst the knowledge content of a curriculum may be independent of the culture, the interpretation of the curriculum into teaching units may be dependent upon the culture, and particularly its language, in which the interpretation occurs.

As has been previously stated, the concepts of one form of knowledge may be connected with concepts of another form. This means that the boundaries between different subjects within the curriculum are not sharply defined. There is, therefore, in the secondary curriculum the possibility of different subjects including the teaching of the same knowledge. It is, however, probable that the justifications for the inclusion of any partic-

ular area of knowledge in different subject curricula will be based upon various values. Thus there will be different attitudes and values associated with the teaching of this knowledge through the range of subjects. In a similar manner the objectives given for the study of a subject, which may bear the name of a form of knowledge, may not all be based upon the conceptual and logical structure of that form. Subjects such as social sciences and religion studies may include content drawn from several forms.

How far then should secondary education, and by implication the secondary curriculum, be concerned with the study of the forms of knowledge? If the focus is upon these forms, then this will lead to Hirst's liberal education, but not to a total education. Although it is not essential in planning the secondary curriculum to organise it in terms of the forms or sub-forms of knowledge, it would appear advantageous for the planning of particular curriculum units to be considered in terms of the distinctive characteristics of the forms of knowledge. Whilst the objectives of early elementary education are socially-based and are, therefore, available outside the structures of these forms, a curriculum structure based on logical grounds may be worthwhile for secondary education. But the range of the objectives encompassed by secondary education will need to be considered in conjunction with logically-based curricula if much that may be important is not to be lost. That is, matters of psychological and social concern to pupils, parents and the community should not be overlooked. Finally,

No organisation of curriculum units necessarily dictates the methods to be employed. Even if our education needs to maintain a firm hold on the intellectual ends it serves, nothing will be gained if it pursues those by methods totally inappropriate for the majority of pupils.<sup>1</sup>

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<sup>1</sup>Hirst, P.H., Knowledge and the Curriculum, R.K.P., 1974, p. 99

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APPENDIX

"LIBERAL EDUCATION  
AND THE  
NATURE OF KNOWLEDGE"

## APPENDIX

### "Liberal education and the nature of knowledge"

The phrase 'liberal education' has today become something of a slogan which takes on different meanings according to its immediate context. It usually labels a form of education of which the author approves, but beyond that its meaning is often entirely negatively derived. Whatever else a liberal education is, it is not a vocational education, not an exclusively scientific education, or not a specialist education in any sense. The frequency with which the term is employed in this way certainly highlights the inadequacies of these other concepts and the need for a wider and, in the long run, more worthwhile form of education. But as long as the concept is merely negative in what it intimates, it has little more than debating value. Only when it is given explicit positive content can it be of use in the serious business of educational planning. It is my contention in this chapter that whatever vagaries there have been in the use of the term, it is the appropriate label for a positive concept, that of an education based fairly and squarely on the nature of knowledge itself, a concept central to the discussion of education at any level.

#### The Greek notion of liberal education

The fully developed Greek notion of liberal education was rooted in a number of related philosophical doctrines; first about the significance of knowledge for the mind, and secondly about the relationship between knowledge and reality. In the first category there was the doctrine that it is the peculiar and distinctive activity of the mind, because of its very nature, to pursue knowledge. The achievement of knowledge satisfies and fulfils the mind which thereby attains its own appropriate end. The pursuit of knowledge is thus the pursuit of the good of the mind and, therefore, an essential element in the good life. In addition, it was held that the achievement of knowledge is not only the attainment of the good of the mind itself, but also the chief means whereby the good life as a whole is to be found. Man is more than pure mind, yet mind is his essential distinguishing characteristic, and it is in terms of knowledge that his whole life is rightly directed.

That knowledge is equal to its task was guaranteed by the second group of doctrines. These asserted that the mind, in the right use of reason, comes to know the essential nature of things and can apprehend what is ultimately real and immutable. Consequently, man no longer needs to live in terms of deceptive appearances and doubtful opinions and beliefs. All his experiences, life and thought can be given shape and perspective by what is finally true, by knowledge that corresponds to what is ultimately real. Further, the particular way in which reason is here represented as attaining knowledge, results in a view of the whole of man's understanding as hierarchically structured in various levels. From the knowledge of mere particulars to that of pure being, all knowledge has its place in a comprehensive and harmonious scheme, the pattern of which is formed as knowledge is developed in apprehending reality in its many different manifestations.

From these doctrines there emerged the idea of liberal education as

a process concerned simply and directly with the pursuit of knowledge. But the doctrines give to this general idea particular meaning and significance; for they lead to a clear definition of its scope and content, and to a clear justification for education in these terms. The definition is clear, because education is determined objectively in range, in structure and in content by the forms of knowledge itself and their harmonious, hierarchical inter-relations. There is here no thought of defining education in terms of knowledge and skills that may be useful, or in terms of moral virtues and qualities of mind that may be considered desirable. The definition is stated strictly in terms of man's knowledge of what is the case. The development of the mind to which it leads, be it in skills, virtues or other characteristics, is thought to be necessarily its greatest good.

The justification that the doctrines lend to this concept of education is threefold. First, such an education is based on what is true and not on uncertain opinions and beliefs or temporary values. It therefore has a finality which no other form of education has. Secondly, knowledge itself being a distinctive human virtue, liberal education has a value for the person as the fulfilment of the mind, a value which has nothing to do with utilitarian or vocational considerations. Thirdly, because of the significance of knowledge in the determination of the good life as a whole, liberal education is essential to man's understanding of how he ought to live, both individually and socially.

Here, then, the Greeks attained the concept of an education that was 'liberal' not simply because it was the education of free men rather than slaves, but also because they saw it as freeing the mind to function according to its true nature, freeing reason from error and illusion and freeing man's conduct from wrong. And ever since Greek times this idea of education has had its place. Sometimes it has been modified or extended in detail to accommodate within its scheme new forms of knowledge: for instance Christian doctrines and the various branches of modern science. Sometimes the concept has been misinterpreted: as in Renaissance humanism when classical learning was equated with liberal education. Sometimes it has been strongly opposed on philosophical grounds: as by Dewey and the pragmatists. Yet at crucial points in the history of education the concept has constantly reappeared. It is hard to understand why this should be so.

Education, being a deliberate, purposeful activity directed to the development of individuals, necessarily involves considerations of value. Where are these values to be found? What is to be their content? How are they to be justified? They can be, and often are, values that reflect the interests of a minority group in the society. They may be religious, political or utilitarian in character. They are always open to debate and detailed criticism, and are always in need of particular justification. Is there not perhaps a more ultimate basis for the values that should determine education, some more objective ground? That final ground has, ever since the Greeks, been repeatedly located in man's conception of the diverse forms of knowledge he has achieved. And there has thus arisen the demand for an education whose definition and justification are based on the nature and significance of knowledge itself, and not on the predilections of pupils, the demands of society, or the whims of politicians. Precisely this demand was behind the development by the Greeks of an education in the seven liberal arts, an introduction to and a pursuit of the forms of knowledge as they were then conceived. It was precisely this demand that prompted Newman and Arnold in the nineteenth century to call for an education that aimed at the

cultivation and development of the mind in the full range of man's understanding. It is the same demand that today motivates such classical realists as Maritain and R.M. Hutchins.

#### A typical modern statement: the Harvard Report

It may well be asked, however, whether those who do not hold the doctrines of metaphysical and epistemological realism can legitimately subscribe to a concept of education of this kind. Historically it seems to have had positive force only when presented in this particular philosophical framework. But historical association must be distinguished from logical connection and it is not by any means obvious that all the characteristic features of the concept are dependent on such philosophical realism. If the doctrines about mind, knowledge and reality mentioned at the beginning of this paper are regarded as at best too speculative a basis for educational planning, as well they may be, the possibility of an education defined and justified entirely in terms of the scope and character of knowledge needs re-examination. The significance of the concept originally came directly from the place the basic doctrines give to knowledge in a unified picture of the mind and its relation to reality. Knowledge is achieved when the mind attains its own satisfaction or good by corresponding to objective reality. A liberal education in the pursuit of knowledge, is, therefore, seeking the development of the mind according to what is quite external to it, the structure and pattern of reality. But if one there is any serious questioning of this relationship between mind, knowledge and reality, the whole harmonious structure is liable to disintegrate. First there arise inevitably problems of definition. A liberal education defined in terms of knowledge alone is acceptable as long as knowledge is thought to be necessarily developing the mind in desirable ways, and hence promoting the good life. But if doubt is cast on these functions of knowledge, must not liberal education be redefined stating explicitly the qualities of mind and the moral virtues to which it is directed? And if knowledge is no longer seen as the understanding of reality but merely as the understanding of experience, what is to replace the harmonious, hierarchical scheme of knowledge that gave pattern and order to the education? Secondly there are equally serious problems of justification. For if knowledge is no longer thought to be rooted in some reality, or if its significance for the mind and the good life is questioned, what can be the justification for an education defined in terms of knowledge alone?

Difficulties of both kinds, but particularly those of definition, can be seen in the well-known Harvard Committee Report: General Education in a Free Society<sup>1</sup>. (In the Committee's terminology the aims of a 'liberal' and a 'general' education are identical.) Though certain of the doctrines that originally supported the concept of a liberal education are implicit in this work, the classical view of the significance of knowledge for the mind is considerably weakened, and the belief that in metaphysics man has knowledge of ultimate reality is ignored, if not rejected. The result is an ambiguous and unsatisfactory treatment of the problem of definition and a limited and debatable treatment of the question of justification. Some examination of the Report on both these scores, particularly the former, will serve to show that adequate definition and justification are not only not dependent on the classical doctrines, but can in fact be based directly on an explication of the concepts of 'mind' and 'knowledge' and their relationships.

The Report attempts the definition of a liberal education in two



distinct ways: in terms of the qualities of mind it ought to produce and the forms of knowledge with which it ought to be concerned. What the precise relationship is between these two is not clear. It is asserted that they are 'images of each other', yet that there is no escape from 'describing general education at one time looking to the good man in society and at another time as dictated by the nature of knowledge itself'.<sup>2</sup> Which of the forms of description is to be given pride of place soon emerges, however. First, three areas of knowledge are distinguished, primarily by their distinctive methods: the natural sciences, the humanities and social studies. But it is made plain that 'the cultivation of certain aptitudes and attitudes of mind' is being aimed at, the elements of knowledge being the means for developing these. Liberal education is therefore best understood in terms of the characteristics of mind to which it leads. 'By characteristics we mean aims so important as to prescribe how general education should be carried out and which abilities ought to be sought above all others in every part of it. These abilities in our opinion are: to think effectively, to communicate thought, to make relevant judgments, to discriminate among values'.<sup>3</sup> The meaning of each of these four is elaborated at some length. Amongst the many things detailed of 'effective thinking' it is first said to be logical thinking of a kind that is applicable to such practical matters as deciding who to vote for and what wife to choose: it is the ability to extract universal truths from particular cases and to infer particulars from general laws: it is the ability to analyse a problem and to recombine the elements by the use of imagination. This thinking goes further than mere logic, however. It includes the relational thinking of everyday life, the ability to think at a level appropriate to a problem whatever its character. It includes too the imaginative thinking of the poet, the inventor, and the revolutionary. 'Communication', though 'obviously inseparable from effective thinking', is said to involve another group of skills, those of speaking and listening, writing and reading. It includes certain moral qualities such as candour, it covers certain vital aspects of social and political life and even the high art of conversation. 'The making of relevant value judgments' involves 'the ability of the student to bring to bear the whole range of ideas upon the area of experience', it is the art of effectively relating theory to practice, abstractions to facts, thought to action. Finally there is 'discrimination among values'. This includes the distinction of various kinds of value and their relative importance, an awareness of the values of character like fair play and self-control, intellectual values like the love of truth and aesthetic values like good taste, and, in addition, a commitment to such values in the conduct of life.<sup>4</sup>

As to how exactly these abilities come to be those developed by the three types of knowledge, little is said. It is noted that 'the three phases of effective thinking, logical, relational, and imaginative, correspond roughly to the three divisions of learning, the natural sciences, the social studies, and the humanities, respectively'.<sup>5</sup> The difficult connection between education in the making of value judgments and the formation of moral character is noted. Otherwise the remarks are of a general nature, emphasising that these abilities must be consciously developed in all studies and generalised as far as possible.

This double, if one-sided, characterisation of liberal education seems to me unsatisfactory and seriously misleading if what is said of the four abilities is examined more closely. In the first place, the notion that a liberal education can be directly characterised in terms of mental abilities and independently of fully specifying the forms of knowledge

involved, is I think false. It is the result of a misunderstanding of the way in which mental abilities are in fact distinguishable. From what is said of 'effective thinking', it is perfectly plain that the phrase is being used as a label for mental activity which results in an achievement of some sort, an achievement that is, at least in principle, both publicly describable and publicly testable - the solving of a mathematical problem, responsibly deciding who to vote for, satisfactorily analysing a work of art. Indeed there can be effective thinking only when the outcome of mental activity can be recognised and judged by those who have the appropriate skills and knowledge, for otherwise the phrase has no significant application. Thus although the phrase labels a form of mental activity, and such mental processes may well be directly accessible only to the person whose processes they are, its description and evaluation must be in public terms occurring in public language. Terms which, like 'effective thinking', describe activities involving achievements of some sort, must have public criteria to mark them. But in that case, none of the four abilities can in fact be delineated except by means of their detailed public features. Such characterisation is in fact forced on the Committee when they come to amplify what they mean. But their approach is simply illustrative, as if the abilities are directly intelligible in themselves, and the items and features of knowledge they give merely examples of areas where the abilities can be seen. If the public terms and criteria are logically necessary to specifying what the abilities are, however, then no adequate account of liberal education in terms of these can be given without a full account in terms of the public features of the forms of knowledge with which it is concerned. Indeed the latter is logically prior and the former secondary and derivative.

In the second place, the use of broad, general terms for these abilities serves in fact to unify misleading quite disparate achievements. For the public criteria whereby the exercise of any one of these abilities is to be judged are not all of a piece. Those that under the banner of 'effective thinking' are appropriate in, say, aesthetic appreciation are, apart from certain very general considerations, inappropriate in, say, mathematical thinking. In each case the criteria are peculiar to the particular area of knowledge concerned. Similarly, for instance, 'communication' in the sciences has only certain very basic features in common with 'communication' in poetic terms. It is only when the abilities are fully divided out, as it were, into the various domains and we see what they refer to in public terms that it is at all clear what is involved in developing them. To talk of developing 'effective thinking' is like talking of developing 'successful games playing'. Plainly that unifying label is thoroughly misleading when what constitutes playing cricket has practically nothing in common with what constitutes playing tiddly-winks. The implications of the term are not at all appreciated until what is wanted is given detailed specification. It is vitally important to realise the very real objective differences that there are in forms of knowledge, and therefore in our understanding of mental processes that are related to these. Maybe this unfortunate desire to use unifying concepts is a relic of the time when all forms of knowledge were thought to be similar, if not identical in logical structure and it was thought that the 'laws of logic' reflected the precise psychological operations involved in valid thinking. Be that as it may, the general terms used in the Report are liable both to blur essential distinctions and to direct the attention of educational planners into unprofitable descriptions of what they are after.

Thirdly, in spite of any protestations to the contrary, the impression

is created by this terminology that it is possible to develop general unitary abilities of the stated kind. The extent to which this is true is a matter for empirical investigation into the transfer of training. Nevertheless such abilities must necessarily be characterised in terms of the public features of knowledge, and whatever general abilities there may be, the particular criteria for their application in diverse fields are vital to their significance for liberal education. But to think in these terms is to be in danger of looking for transfer of skills where none is discernible. We must not assume that skill at tiddly-winks will get us very far at cricket, or that if the skills have much in common, as in say squash and tennis, then rules for one activity will do as the rules for the other.

Failure to appreciate these points leads all too readily to programmes of education for which quite unwarranted claims are made. It is sometimes said, for instance, that the study of one major science can in itself provide the elements of a liberal education - that it can lead to the development of such abilities as effective thinking, communication, the making of relevant judgments, and even to some extent, discrimination among values. But this facile view is seen to be quite untenable if it is once understood how these abilities are defined, and how any one form of knowledge is related to them. Much more plausible and much more common is the attempt to relate directly the study of particular subjects to the development of particular unitary abilities. The Harvard Committee do this with subdivisions of 'effective thinking' when they suggest that, roughly speaking, logical thinking is developed by the sciences, relational thinking by social studies, and imaginative thinking by the humanities. This, of course, could be said to be true by definition if logical thinking were taken to be just that kind of thinking that is developed by the study of the sciences. But such a straight and limited connection is not at all what is indicated in the Report. The forms of thinking there are much more generalised. It follows then that logical, relational and imaginative thinking must be independently defined. Because of the vagueness of the terms it might appear that this would be simple enough. But in fact this very vagueness makes the task almost impossible, for any one of the three terms might, with considerable justice, be applied to almost any example of thinking. (And the appropriateness of using such a term as 'imaginative' to describe a distinct type of thinking rather than its manner or style is very debatable.) Even if these forms of thinking can be satisfactorily defined, it remains to be shown that each one of them demands the exercise of one distinct but general ability and that this ability can be developed by study in one particular area of human learning. Generally speaking there is little such evidence. What there is on transfer of training suggests that it occurs only where there is marked logical similarity in the elements studied.<sup>6</sup>

Finally the characterisation of a liberal education in these terms is misleading owing to the tendency for the concept to be broadened so that it is concerned not only with the development of the mind that results from the pursuit of knowledge, but also with other aspects of personal development, particularly emotional and moral, that may or may not be judged desirable. This tendency can be clearly seen in the Report's comments on the abilities of communication, making relevant judgments and discriminating among values. Stretching the edges of the concept in these ways leads to a much wider, more generalised notion of education. It then ceases to be one defined directly in terms of the pursuit of knowledge as liberal education originally was, and thus cannot be justified by justifying that pursuit. But

this is surely to give up the concept in favour of another one that needs independent justification. The analysis of such a concept is beyond our present concern.

#### A re-assertion and a reinterpretation

On logical grounds, then, it would seem that a consistent concept of liberal education must be worked out fully in terms of the forms of knowledge. By these is meant, of course, not collection of information, but the complex ways of understanding experience which man has achieved, which are publicly specifiable and which are gained through learning. An education in these terms does indeed develop its related abilities and qualities of mind, for the mind will be characterised to a greater or lesser degree by the features of the understanding it seeks. Each form of knowledge, if it is to be acquired beyond a general and superficial level, involves the development of creative imagination, judgment, thinking, communicative skills, etc., in ways that are peculiar to itself as a way of understanding experience. To list these elements, picking them out, as it were, across the forms of knowledge of which they are part and in each of which they have a different stamp, draws attention to many features that a liberal education must of course include. But it draws attention to them at the expense of the differences among them as they occur in the different areas. And of itself such listing contributes nothing to the basic determination of what a liberal education is. To be told that it is the development of effective thinking is of no value until this is explicated in terms of the forms of knowledge which give it meaning: for example in terms of the solving of problems in Euclidean geometry or coming to understand the poems of John Donne. To be told instead that it is concerned with certain specified forms of knowledge, the essential characteristics of which are then detailed explicitly as far as possible, is to be given a clear understanding of the concept and one which is unambiguous as to the forms of thinking, judgment, imagination and communication it involves.

In his Gulbenkian Foundation Report Arts and Science Sides in the Sixth Form, Mr. A.D.C. Peterson comes considerably nearer than the Harvard Committee to the definition of a liberal education (once more termed here a 'general education') by proceeding in just this fashion. Being concerned that this should not be worked out in terms of information, he shies away from any direct use of the term 'knowledge' and defines the concept modestly as one that 'develops the intellect in as many as possible of the main modes of thinking'.<sup>7</sup> These are then listed as the logical, the empirical, the moral and the aesthetic. The phrase 'modes of thinking', it is true, refers directly to forms of mental activity, and Mr. Peterson's alternatives for it, 'modes of human experience', 'categories of mental experience' and (elsewhere) 'types of judgment', all look in the same direction. Yet the 'modes' are not different aspects of mind that cut across the forms that human knowledge takes, as the Harvard Report's 'abilities' are. They are, rather, four parallel forms of mental development. To complete this treatment so that there is no ambiguity, however, it must be made clear in a way that Mr. Peterson does not make it clear, that the four forms can only be distinguished, in the last analysis, in terms of the public features that demarcate the areas of knowledge on which they stand. Logical, empirical, moral and aesthetic forms of understanding are distinguishable from each other only by their distinctive concepts and expressions and their criteria for distinguishing the true from the false,

the good from the bad. If Mr. Peterson's 'modes' are strictly explicated on the basis of these features of knowledge, then his concept of education becomes one concerned with the development of the mind as that is determined by certain forms of knowledge. This is to be in sight of a modern equivalent of the traditional conception of liberal education.

But the reassertion of this concept implies that there is once more the acceptance of some kind of 'harmony' between knowledge and the mind. This is, however, not now being maintained on metaphysical grounds. What is being suggested, rather, is that the 'harmony' is a matter of the logical relationship between the concept of 'mind' and the concept of 'knowledge', from which it follows that the achievement of knowledge is necessarily the development of mind - that is, the self-conscious rational mind of man - in its most fundamental aspect.

Whatever else is implied in the phrase, to have 'a rational mind' certainly implies experience structured under some form of conceptual scheme. The various manifestations of consciousness, in, for instance, different sense perceptions, different emotions, or different elements of intellectual understanding, are intelligible only by virtue of the conceptual apparatus by which they are articulated. Further, whatever private forms of awareness there may be, it is by means of symbols, particularly in language, that conceptual articulation becomes objectified, for the symbols give public embodiment to the concepts. The result of this is that men are able to come to understand both the external world and their own private states of mind in common ways, sharing the same conceptual schemata by learning to use symbols in the same manner. The objectification of understanding is possible because commonly accepted criteria for using the terms are recognised even if these are never explicitly expressed. But further, as the symbols derived from experience can be used to examine subsequent experience, assertions are possible which are testable as true or false, valid or invalid. There are thus also public criteria whereby certain forms of expression are assessable against experience. Whether the 'objects' concerned are themselves private to the individual like mental processes, or publicly accessible like temperature readings, there are here tests for the assertions which are themselves publicly agreed and accepted.

It is by the use of such tests that we have come to have the whole domain of knowledge. The formulating and testing of symbolic expressions has enabled man to probe his experience for ever more complex relations and for finer and finer distinctions, these being fixed and held for public sharing in the symbolic systems that have been evolved. But it is important to realise that this progressive attainment of a cognitive framework with public criteria has significance not merely for knowledge itself, for it is by its terms that the life of man in every particular is patterned and ordered. Without its structure all other forms of consciousness, including, for example, emotional experiences, or mental attitudes and beliefs, would seem to be unintelligible. For the analysis of them reveals that they lack independent intelligible structure of themselves. Essentially private though they may be in many or all of their aspects, their characteristic forms are explicable only by means of the publicly rooted conceptual organisations we have achieved. They can be understood only by means of the objective features with which they are associated, round which they come to be organised and built. The forms of knowledge are thus the basic articulations whereby the whole of experience has become intelligible to man, they are the fundamental achievement of mind.

Knowledge, however, must never be thought of merely as vast bodies of tested symbolic expressions. These are only the public aspects of the ways in which human experience has come to have shape. They are significant because they are themselves the objective elements round which the development of mind has taken place. To acquire knowledge is to become aware of experience as structured, organised and made meaningful in some quite specific way, and the varieties of human knowledge constitute the highly developed forms in which man has found this possible. To acquire knowledge is to learn to see, to experience the world in a way otherwise unknown, and thereby come to have a mind in a fuller sense. It is not that the mind is some kind of organ or muscle with its own inbuilt forms of operation, which if somehow developed, naturally lead to different kinds of knowledge. It is not that the mind has predetermined patterns of functioning. Nor is it that the mind is an entity which suitably directed by knowledge comes to take on the pattern of, is conformed to, some external reality. It is rather that to have a mind basically involves coming to have experience articulated by means of various conceptual schemata. It is only because man has over millennia objectified and progressively developed these that he has achieved the forms of human knowledge, and the possibility of the development of mind as we know it is open to us today.

A liberal education is, then, one that, determined in scope and content by knowledge itself, is thereby concerned with the development of mind. The concept is thus once more clearly and objectively defined in precisely the same way as the original concept. It is however no longer supported by epistemological and metaphysical doctrines that result in a hierarchical organisation of the various forms of knowledge. The detailed working out of the education will therefore be markedly different in certain respects. The distinctions between the various forms of knowledge which will principally govern the scheme of education will now be based entirely on analyses of their particular conceptual, logical and methodological features. The comprehensive character of the education will of course remain, since this is essentially part of the definition of the concept, but any question of the harmonious organisation of its various elements will depend on the relationships between them that are revealed by these analyses.

But if the concept is reasserted in these terms, what now of the question of its justification? The justification of a liberal education as supported by the doctrines of classical realism was based on the ultimacy of knowledge as ordered and determined by reality, and the significance of knowledge for the mind and for the good life. Having weakened these doctrines, the Harvard Committee's justification of their concept ignores the question of the relationship between knowledge and reality, and there is a specific rejection of the view that knowledge is in itself the good of the mind. They assert, however, the supreme significance of knowledge in the determination of all human activity, and supplement this, as is certainly necessary because of the extended nature of their concept, by general considerations of the desirability of their suggestions. When once more the concept is strictly confined so as to be determined by the forms of knowledge, the return to a justification of it without reference to what is generally thought desirable on social or similar grounds becomes possible. And such justification for the concept is essential if the education it delineates is to have the ultimate significance that, as was earlier suggested, is part of its *raison d'être*. This justification must now however stem from what has already been said of the nature of knowledge

as no metaphysical doctrine of the connection between knowledge and reality is any longer being invoked.

If the achievement of knowledge is necessarily the development of mind in its most basic sense, then it can be readily seen that to ask for a justification for the pursuit of knowledge is not at all the same thing as to ask for the justification for, say, teaching all children a foreign language or making them orderly and punctual in their behaviour. It is in fact a peculiar question asking for justification for any development of the rational mind at all. To ask for the justification of any form of activity is significant only if one is in fact committed already to seeking rational knowledge. To ask for a justification of the pursuit of rational knowledge itself therefore pre-supposes some form of commitment to what one is seeking to justify. Justification is possible only if what is being justified is both intelligible under publicly rooted concepts and is assessable according to accepted criteria. It assumes a commitment to these two principles. But these very principles are in fact fundamental to the pursuit of knowledge in all its forms, be it, for instance, empirical knowledge or understanding in the arts. The forms of knowledge are in a sense simply the working out of these general principles in particular ways. To give justification of any kind of knowledge therefore involves using the principles in one specific form to assess their use in another. Any particular activity can be examined for its rational character, for its adherence to these principles, and thus justified on the assumption of them. Indeed in so far as activities are rational this will be possible. It is commitment to them that characterises any rational activity as such. But the principles themselves have no such assessable status, for justification outside the use of the principles is not logically possible. This does not mean that rational pursuits in the end lack justification, for they could equally well be said to have their justification written into them. Nor is any form of viciously circular justification involved by assuming in the procedure what is being looked for. The situation is that we have here reached the ultimate point where the question of justification ceases to be significantly applicable. The apparent circularity is the result of the inter-relation between the concepts of rational justification and the pursuit of knowledge.

Perhaps the finality of these principles can be brought out further by noting a negative form of the same argument. From this point of view, to question the pursuit of any kind of rational knowledge is in the end self-defeating, for the questioning itself depends on accepting the very principles whose use is finally being called in question.

It is because it is based on these ultimate principles that characterise knowledge itself and not merely on lower level forms of justification that a liberal education is in a very real sense the ultimate form of education. In spite of the absence of any metaphysical doctrine about reality this idea of liberal education has a significance parallel to that of the original Greek concept. It is an education concerned directly with the development of the mind in rational knowledge, whatever form that freely takes. This parallels the original concept in that according to the doctrine of function liberal education was the freeing of the mind to achieve its own good in knowledge. In each case it is a form of education knowing no limits other than those necessarily imposed by the nature of rational knowledge and thereby itself developing in man the final court of appeal in all human affairs.

As here reformulated the concept has, again like the original object-

ivity, though this is no longer backed by metaphysical realism. For it is a necessary feature of knowledge as such that there be public criteria whereby the true is distinguishable from the false, the good from the bad, the right from the wrong. It is the existence of these criteria which gives objectivity to knowledge; and this in its turn gives objectivity to the concept of liberal education. A parallel to another form of justification thus remains, and the concept continues to warrant its label as that of an education that frees the mind from error and illusion. Further, as the determination of the good life is now considered to be itself the pursuit of a particular form of rational knowledge, that in which what ought to be done is justified by the giving of reasons, this is seen as a necessary part of a liberal education. And as all other forms of knowledge contribute in their way to moral understanding, the concept as a whole is once more given a kind of justification in its importance for the moral life. But this justification, like that of objectivity, no longer has the distinct significance which it once had, for it is again simply a necessary consequence of what the pursuit of knowledge entails. Nevertheless, liberal education remains basic to the freeing of human conduct from wrong.

### Certain basic philosophical considerations

Having attempted a reinstatement of the concept without its original philosophical backing, what of the implications of this for the practical conduct of education? In working these out it is necessary first to try to distinguish the various forms of knowledge and then to relate them in some way to the organisation of the school or college curriculum. The first of these is a strictly philosophical task. The second is a matter of practical planning that involves many considerations other than the purely philosophical, and to this I will return when certain broad distinctions between forms of knowledge have been outlined.

As stated earlier, by a form of knowledge is meant a distinct way in which our experience becomes structured round the use of accepted public symbols. The symbols thus having public meaning, their use is in some way testable against experience and there is the progressive development of series of tested symbolic expressions. In this way experience has been probed further and further by extending and elaborating the use of the symbols and by means of these it has become possible for the personal experience of individuals to become more fully structured, more fully understood. The various forms of knowledge can be seen in low level developments within the common area of our knowledge of the everyday world. From this there branch out the developed forms which, taking certain elements in our common knowledge as a basis, have grown in distinctive ways. In the developed forms of knowledge the following related distinguishing features can be seen:

(1) They each involve certain central concepts that are peculiar in character to the form. For example, those of gravity, acceleration, hydrogen, and photo-synthesis characteristic of the sciences; number, integral and matrix in mathematics; God, sin and predestination in religion; ought, good and wrong in moral knowledge.

(2) In a given form of knowledge these and other concepts that denote, if perhaps in a very complex way, certain aspects of experience, form a network of possible relationships in which experience can be understood. As a result the form has a distinctive logical structure. For example, the terms and statements of mechanics can be meaningfully related in certain strictly limited ways only, and the same is true of historical



explanation.

(3) The form, by virtue of its particular terms and logic, has expressions or statements (possibly answering a distinctive type of question) that in some way or other, however indirect it may be, are testable against experience. This is the case in scientific knowledge, moral knowledge, and in the arts, though in the arts no questions are explicit and the criteria for the tests are only partially expressible in words. Each form, then, has distinctive expressions that are testable against experience in accordance with particular criteria that are peculiar to the form.

(4) The forms have developed particular techniques and skills for exploring experience and testing their distinctive expressions, for instance the techniques of the sciences and those of the various literary arts. The result has been the amassing of all the symbolically expressed knowledge that we now have in the arts and the sciences.

Though the various forms of knowledge are distinguishable in these ways it must not be assumed that all there is to them can be made clear and explicit by these means. All knowledge involves the use of symbols and the making of judgments in ways that cannot be expressed in words and can only be learnt in a tradition. The art of scientific investigation and the development of appropriate experimental tests, the forming of an historical explanation and the assessment of its truth, the appreciation of a poem: all of these activities are high arts that are not in themselves communicable simply by words. Acquiring knowledge of any form is therefore to a greater or lesser extent something that cannot be done simply by solitary study of the symbolic expressions of knowledge, it must be learnt from a master on the job. No doubt it is because the forms require particular training of this kind in distinct worlds of discourse, because they necessitate the development of high critical standards according to complex criteria, because they involve our coming to look at experience in particular ways, that we refer to them as disciplines. They are indeed disciplines that form the mind.

Yet the dividing lines that can be drawn between different disciplines by means of the four suggested distinguishing marks are neither clear enough nor sufficient for demarcating the whole world of modern knowledge as we know it. The central feature to which they point is that the major forms of knowledge, or disciplines, can each be distinguished by their dependence on some particular kind of test against experience for their distinctive expressions. On this ground alone however certain broad divisions are apparent. The sciences depend crucially on empirical experimental and observational tests, mathematics depends on deductive demonstrations from certain sets of axioms. Similarly moral knowledge and the arts involve distinct forms of critical tests though in these cases both what the tests are and the ways in which they are applied are only partially statable. (Some would in fact dispute the status of the arts as a form of knowledge for this very reason.) Because of their particular logical features it seems to me necessary to distinguish also as separate disciplines both historical and religious knowledge, and there is perhaps an equally good case, because of the nature of their central concepts, for regarding the human sciences separately from the physical sciences. But within these areas further distinctions must be made. These are usually the result of the groupings of knowledge round a number of related concepts, or round particular skills or techniques. The various sciences and the various arts can be demarcated within the larger units of which they are in varying

degrees representative in their structure, by these means.

But three other important classifications of knowledge must in addition be recognised. First there are those organisations which are not themselves disciplines or subdivisions of any discipline. They are formed by building together round specific objects, or phenomena, or practical pursuits, knowledge that is characteristically rooted elsewhere in more than one discipline. It is not just that these organisations make use of several forms of knowledge, for after all the sciences use mathematics, the arts use historical knowledge and so on. Many of the disciplines borrow from each other. But these organisations are not concerned, as the disciplines are, to validate any one logically distinct form of expression. They are not concerned with developing a particular structuring of experience. They are held together simply by their subject matter, drawing on all forms of knowledge that can contribute to them. Geography, as the study of man in relation to his environment, is an example of a theoretical study of this kind, engineering an example of a practical nature. I see no reason why such organisations of knowledge, which I shall refer to as 'fields', should not be endlessly constructed according to particular theoretical or practical interests. Second, whilst moral knowledge is a distinct form, concerned with answering questions as to what ought to be done in practical affairs, no specialised subdivisions of this have been developed. In practical affairs, moral questions, because of their character, naturally arise alongside questions of fact and technique, so that there have been formed 'fields' of practical knowledge that include distinct moral elements within them, rather than the subdivisions of a particular discipline. Political, legal and educational theory are perhaps the clearest examples of fields where moral knowledge of a developed kind is to be found. Thirdly, there are certain second order forms of knowledge which are dependent for their existence on the other primary areas. On the one hand there are the essentially scientific studies of language and symbolism as in grammar and philosophy. On the other hand there are the logical and philosophical studies of meaning and justification. These would seem to constitute a distinct discipline by virtue of their particular concepts and criteria of judgment.

In summary, then, it is suggested that the forms of knowledge as we have them can be classified as follows:

I Distinct disciplines or forms of knowledge (subdivisible): mathematics, physical sciences, human sciences, history, religion, literature and the fine arts, philosophy.

II Fields of knowledge: theoretical, practical (these may or may not include elements of moral knowledge).

It is the distinct disciplines that basically constitute the range of unique ways we have of understanding experience if to these is added the category of moral knowledge.

#### The planning and practical conduct of liberal education

Turning now to the bearing of this discussion on the planning and conduct of a liberal education, certain very general comments about its characteristic features can be made though detailed treatment would involve psychological and other considerations that are quite beyond the scope of this chapter.

In the first place, as liberal education is concerned with the comprehensive development of the mind in acquiring knowledge, it is aimed at achieving an understanding of experience in many different ways. This means the acquisition by critical training and discipline not only of facts but also of complex conceptual schemes and of the arts and techniques of different types of reasoning and judgment. Syllabuses and curricula cannot therefore be constructed simply in terms of information and isolated skills. They must be constructed so as to introduce pupils as far as possible into the interrelated aspects of each of the basic forms of knowledge, each of the several disciplines. And they must be constructed to cover at least in some measure the range of knowledge as a whole.

In a programme of liberal education that is based directly on the study of the specific disciplines, examples of each of the different areas must of course be chosen. Selection of this kind is not however simply an inevitable practical consequence of the vast growth of knowledge. It is equally in keeping with what a liberal education is aiming at. Though its aim is comprehensive it is not after the acquisition of encyclopaedic information. Nor is it after the specialist knowledge of the person fully trained in all the particular details of a branch of knowledge. Such a specialist can not only accurately employ the concepts, logic and criteria of a domain but also knows the skills and techniques involved in the pursuit of knowledge quite beyond the immediate areas of common human experience. Nor is liberal education concerned with the technician's knowledge of the detailed application of the disciplines in practical and theoretical fields. What is being sought is, first, sufficient immersion in the concepts, logic and criteria of the discipline for a person to come to know the distinctive way in which it 'works' by pursuing these in particular cases; and then sufficient generalisation of these over the whole range of the discipline so that his experience begins to be widely structured in this distinctive manner. It is this coming to look at things in a certain way that is being aimed at, not the ability to work out in minute particulars all the details that can be in fact discerned. It is the ability to recognise empirical assertions or aesthetic judgments for what they are, and to know the kind of considerations on which their validity will depend, that matters. Beyond this an outline of the major achievements in each area provides some grasp of the range and scope of experience that has thus become intelligible. Perhaps this kind of understanding is in fact most readily distinguishable in the literary arts as critical appreciation in contrast to the achievement of the creative writer or the literary hack. But the distinction is surely applicable to other forms of knowledge as well.

This is not to assert that 'critical' appreciation in any form of knowledge can be adequately achieved without some development of the understanding of the specialist or technician. Nor is it to imply that this understanding in the sciences, the arts or moral issues can be had without participation in many relevant creative and practical pursuits. The extent to which this is true will vary from discipline to discipline and is in fact in need of much investigation, particularly because of its importance for moral and aesthetic education. But it is to say that the aim of the study of a discipline in liberal education is not that of its study in a specialist or technical course. The first is concerned with developing a person's ways of understanding experience, the others are concerned with mastering the details of knowledge, how it is established, and the use of it in other enterprises, particularly those of a practical nature. It is of course perfectly possible for a course in physics, for example, to be devoted to a double purpose if it is deliberately so designed. It may

provide both a specialist knowledge of the subject and at the same time a genuine introduction to the form of scientific knowledge. But the two purposes are quite distinct and there is no reason to suppose that by aiming at one the other can automatically be achieved as well. Yet it would seem to be true that some specialist study within a discipline, if it is at all typical of the discipline, is necessary to understanding the form of knowledge in any developed sense. The study of a discipline as part of liberal education, however, contributes practically nothing directly to any specialist study of it, though it does serve to put the specialism into a much wider context.

A liberal education approached directly in terms of the disciplines will thus be composed of the study of at least paradigm examples of all the various forms of knowledge. This study will be sufficiently detailed and sustained to give genuine insight so that pupils come to think in these terms, using the concepts, logic and criteria accurately in the different domains. It will then include generalisation of the particular examples used so as to show the range of understanding in the various forms. It will also include some indication of the relations between the forms where these overlap and their significance in the major fields of knowledge, particularly the practical fields, that have been developed. This is particularly important for moral education, as moral questions can frequently be solved only by calling on the widest possible range of human understanding. As there is in fact no developed discipline of moral knowledge, education in moral understanding must necessarily be approached in a rather different way. For if it is to cover more than everyday personal matters this has to be by the study of issues that occur in certain particular fields of knowledge. The major difficulty this presents will be referred to briefly later. The important point here is that though moral understanding has to be pursued in contexts where it is not the only dominant interest, the aim of its pursuit is precisely the same as for all other elements in a liberal education, the understanding of experience in a unique way. What is wanted (just as in the study of the disciplines per se) is, basically, the use of the appropriate concepts, logic, and criteria, and the appreciation of the range of understanding in this form.

It is perhaps important to stress the fact that this education will be one in the forms of knowledge themselves and not merely a self-conscious philosophical treatment of their characteristics. Scientific and historical knowledge are wanted, not knowledge of the philosophy of science and the philosophy of history as substitutes. A liberal education can only be planned if distinctions in the forms of knowledge are clearly understood, and that is a philosophical matter. But the education itself is only partly in philosophy, and that is only possible when pupils have some grasp of the other disciplines themselves.

Precisely what sections of the various disciplines are best suited to the aims of liberal education cannot be gone into here. It is apparent that on philosophical grounds alone some branches of the sciences, for instance, would seem to be much more satisfactory as paradigms of scientific thinking than others. Many sections of physics are probably more comprehensive and clear in logical character, more typical of the well developed physical sciences than, say, botany. If so, they would, all other things being equal, serve better as an introduction to scientific knowledge. Perhaps in literature and the fine arts the paradigm principle is less easy to apply though probably many would favour a course in literature to any one other. But whatever the discipline, in practice all other things are not in fact equal and decisions about the content of courses cannot be taken

without careful regard to the abilities and interests of the students for whom they are designed.

Yet hovering round such decisions and questions of syllabus planning there is frequently found the belief that the inherent logical structure of a discipline, or a branch of a discipline necessarily determines exactly what and exactly how the subject is to be taught and learnt. The small amount of truth and the large amount of error in this belief can only be distinguished by clarifying what the logic of a subject is. It is not a series of intellectual steps that must be climbed in strict order. It is not a specific psychological channel along which the mind must travel if there is to be understanding. This is to confuse logical characteristics with psychological processes. The logic of a form of knowledge shows the meaningful and valid ways in which its terms and criteria are used. It constitutes the publicly accepted framework of knowledge. The psychological activities of the individual when concerned with this knowledge are not in general prescribed in any temporal order and the mind, as it were, plays freely within and around the framework. It is simply that the framework lays down the general formal relations of the concepts if there is to be knowledge. The logic as publicly expressed consists of the general and formal principles to which the terms must conform in knowledge. Coming to understand a form of knowledge involves coming to think in relations that satisfy the public criteria. How the mind plays round and within these is not itself being laid down at all, there is no dragooning of psychological processes, only a marking out of the territory in which the mind can wander more or less at will. Indeed understanding a form of knowledge is far more like coming to know a country than climbing a ladder. Some places in a territory may only be get-at-able by a single specified route and some forms of knowledge may have concepts and relations that cannot be understood without first understanding certain others. But that countries are explorable only in one way is in general false, and even in mathematics, the most strictly sequential form of knowledge we have, many ways of coming to know the territory are possible. The logic of a subject is relevant to what is being taught, for its patterns must be accepted as essential to the form of knowledge. But how those patterns are best discerned is a matter for empirical investigation.

School subjects in the disciplines as we at present have them are in no way sacrosanct on either logical or psychological grounds. They are necessarily selections from the forms of knowledge that we have and may or may not be good as introductions for the purposes of liberal education. In most cases they have developed under a number of diverse influences. The historical growth of the subjects has sometimes dominated the programmes. The usefulness of certain elements, the demands of higher specialist education, certain general 'psychological' principles such as progressing from the simple to the complex, from the particular to the general, the concrete to the abstract, all these factors and many others have left their marks. This being so, many well established courses need to be critically re-examined both philosophically and psychologically before they can be accepted as suitable for liberal education. Superficially at least most of them would seem to be quite inappropriate for this purpose.

Though a liberal education is most usually approached directly in the study of various branches of the disciplines, I see no reason to think that this must necessarily be so. It is surely possible to construct programmes that are in the first place organised round certain fields of

knowledge either theoretical or practical. The study of aspects of power, natural as well as social and political, might for instance be one element in such a scheme: or a regional study that introduces historical, geographical, industrial and social considerations: or a practical project of design and building involving the sciences, mathematics and visual arts. In this case, however, it must be recognised that the fields are chosen because together they can be used to develop understanding of all the various forms of knowledge, and explicit steps must be taken to see that this end is achieved. There will necessarily be the strongest tendency for liberal education to be lost sight of and for the fields to be pursued in their own right developing the techniques and skills which they need. These may be valuable and useful in many ways, and perhaps essential in many a person's whole education. (Certainly liberal education as is here being understood is only one part of the education a person ought to have, for it omits quite deliberately for instance specialist education, physical education and character training.) But a course in various fields of knowledge will not in fact be a liberal education unless that aim is kept absolutely clear and every opportunity is taken to lead to a fuller grasp of the disciplines. Again some fields of study will be better for this purpose than others but all will demand the highest skill from the teacher, who must be under no misapprehension as to what the object of the exercise really is. Yet it is difficult to see how this kind of approach can be fully adequate if it does not in the end lead to a certain amount of study of the distinct disciplines themselves. For whatever ground may have been covered indirectly a satisfactory understanding of the characteristically distinct approaches of the different forms is hardly possible without some direct gathering together of the elements of the disciplines that have been implicit in all that has been done.

Whatever the pattern of a liberal education in its later stages, it must not be forgotten that there is being presupposed a broad basic education in the common area of everyday knowledge where the various disciplines can be seen in embryo and from which they branch out as distinct units. In such a basic primary education, the evergrowing range of a child's experience and the increasing use of linguistic and symbolic forms lays the foundation for the various modes of understanding, scientific, historical, religious, moral, and so on. Out of this general pool of knowledge the disciplines have slowly become ever more differentiated and it is this that the student must come to understand, not confusing the forms of knowledge but appreciating them for what they are in themselves, and recognising their necessary limitations.

But is then the outcome of a liberal education to be simply the achievement of a series of discreet ways of understanding experience? In a very real sense yes, but in another sense not entirely. For one thing, we have as yet not begun to understand the complex interrelations of the different forms of knowledge themselves, for they do not only have unique features but common features too, and in addition one discipline often makes extensive use of the achievements of another. But we must also not forget that the various forms are firmly rooted in that common world of persons and things which we all share, and into this they take back in subtle as well as simple ways the understanding they have achieved. The outcome of a liberal education must therefore not be thought of as producing ever greater disintegration of the mind but rather the growth of ever clearer and finer distinctions in our experience. If the result is not some quasi-aesthetic unity of the mind neither is it in any sense chaos. Perhaps the most suggest-

ive picture of the outcome is that used by Professor Michael Oakeshott, though for him it has more literal truth than is here intended. In this the various forms of knowledge are seen as voices in a conversation, a conversation to which they each contribute in a distinctive way. If taken figuratively, his words express more succinctly than mine can precisely what it seems to me a liberal education is and what its outcome will be.

As civilised human beings, we are the inheritors, either of an inquiry about ourselves and the world, nor of an accumulating body of information, but of a conversation, begun in the primeval forests and extended and made more articulate in the course of centuries. It is a conversation which goes on both in public and within each of ourselves. Of course there is argument and inquiry and information, but wherever these are profitable they are to be recognized as passages in this conversation, and perhaps they are not the most captivating of the passages... Conversation is not an enterprise designed to yield an extrinsic profit, a contest where a winner gets a prize, nor is it an activity of exegesis; it is an unrehearsed intellectual adventure... Education, properly speaking, is an initiation into the skill and partnership of this conversation in which we learn to recognize the voices, to distinguish the proper occasions of utterance, and in which we acquire the intellectual and moral habits appropriate to conversation. And it is this conversation which, in the end, gives place and character to every human activity and utterance.<sup>8</sup>

#### Notes

- 1 *General Education in a Free Society*: Report of the Harvard Committee, Oxford University Press, 1946.
- 2 Ibid., p. 58.
- 3 Ibid., pp. 64-5.
- 4 Ibid., pp. 65-73.
- 5 Ibid., p. 67.
- 6 Precisely the same criticisms might be made of some remarks by Professor P.H. Nowell-Smith in his inaugural lecture, *Education in a University* (Leicester University Press, 1958), pp. 6-11. In these he suggests that the prime purpose of the study of literature, history and philosophy is that each develops one of the central powers of the mind - creative imagination, practical wisdom, and logical thought. Once more we are up against the question of the definition of these 'powers' and if that problem can be solved, the question of sheer evidence for them and the way they can be developed.
- 7 *Arts and Science Sides in the Sixth Form*: Gulbenkian Foundation Report, Oxford University Department of Education, 1960, p. 15.
- 8 Michael Oakeshott, *Rationalism in Politics and Other Essays*, Methuen, 1962, pp. 198-9.