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EDUCATION AS THE DEVELOPMENT OF NATIONALITY:

PAUL HIRST'S EDUCATIONAL THEORY

by

Jeffrey Alan Morgan

B.A., SIMON FRASER UNIVERSITY, 1983

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS (EDUCATION)

IN THE FACULTY

OF

EDUCATION

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SIMON FRASER UNIVERSITY

September 1985

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ISBN 0-315-30872-9

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Degree:

Master of Arts (Education)

Title of Thesis:

Education As the Development of Rationality:  
Paul Hirst's Educational Theory

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## ABSTRACT

This thesis is an attempt to show that some of Paul Hirst's views on the concept of liberal education are mistaken.

Hirst believes that (a) the attainment of a liberal education is equivalent to an initiation into the various forms of knowledge; (b) the acquisition of knowledge is logically necessary to the development of rationality; and (c) the development of rationality can be shown with a transcendental argument to be intrinsically valuable. Therefore, (d), liberal education is significant, in Hirst's view, because it is tantamount to achievements which are central to human development.

In this essay I concentrate on his views about the relation between the acquisition of knowledge and the development of rationality. In particular I attempt to show that it is only partly true that the acquisition of knowledge is logically necessary to the development of rationality; that on the contrary, at least some rationality is logically presupposed by the acquisition of knowledge. In a sentence, the acquisition of knowledge cannot be an essential element in the development of all

of one's rationality because only rational agents are in a position to acquire knowledge.

In the first chapter I attempt to show how Hirst conceives of the relation between the acquisition of knowledge and the development of rationality, and how those views fit into his overall educational theory. In the second chapter I attempt to show that he is mistaken in equating the acquisition of knowledge to the development of rationality. This I attempt to achieve with partial analyses of the concepts of knowledge and rationality.

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## INTRODUCTION

### (i) Statement of the problem

In a number of papers in his *Knowledge and the Curriculum*, Paul Hirst attempts to show that a curriculum designed in order to provide a liberal education for pupils will succeed only if it is "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" (Hirst, 1974, p. 47).

His argument relies on positions about (a) the concept of liberal education; (b) the nature of knowledge; (c) the significance of knowledge for the development of mind or rationality; and (d) the value of the development of mind or rationality.

Hirst's project is to show the significance of liberal education. In his "Liberal Education and the Nature of Knowledge" he wrote:

. . . 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 not hard to understand why this should be so. (Hirst, 1974, pp. 31-2)

Hirst's positions on (b), (c), and (d) comprise an attempt to show that the acquisition of a liberal education (as described by position (a)) is a worthwhile achievement. Hirst's work constitutes a theory about education.

Hirst believes that his views have curricular implications, but I shall not concern myself with those in this paper. Here I shall be concerned primarily with his conception of liberal education.

Hirst's theory is often called the "forms of knowledge" thesis. He believes that there are seven or eight ways "in which our experience becomes structured round the use of accepted public symbols" (Hirst, 1974, p.44). These forms of knowledge are (1) mathematics; (2) the physical sciences; (3) the human sciences; (4) history; (5) religion; (6) literature and the fine arts; (7) philosophy; and (8) morals (Hirst, 1974, p. 46). (In his "The Forms of Knowledge Re-visited" he claims that history and the human sciences are not really distinct from each other (Hirst, 1974, p. 86).)

In this essay I will try to show that Hirst is wrong to equate the acquisition of knowledge with the development of rationality, (which, for Hirst, is equivalent to the development of mind).

(ii) Synopsis of the thesis

In Chapter I, I shall elucidate Hirst's views on the acquisition of knowledge and the development of rationality. I will try to show that he believes that the acquisition of knowledge is necessary and sufficient for the development of rationality. In addition, I shall show how these views fit into Hirst's overall educational theory.

In the second chapter I shall show that rationality is a condition of the acquisition of knowledge. This will show that the acquisition of knowledge is an achievement of a different sort than the development of rationality.

In the conclusion I will try to point out why Hirst was lead to think that education is equivalent to the development of rationality.

## CHAPTER I

## PAUL HIRST'S EDUCATIONAL THEORY

## (i) Hirst's conception of liberal education

Hirst's work does not proceed from a descriptive analysis of the concept of liberal education. Hirst does not begin his work by examining how most people, or even how most educated people think of liberal education. His definition of 'liberal education' does not report (or at any rate is not meant to report) the ordinary usage of that expression. In his "The Forms of Knowledge Re-visited", he explains that "the concept of 'liberal education' I outlined was explicitly stipulative" (Hirst, 1974, p.96). Insofar as it is possible to fix the meaning of 'liberal education' in ordinary language, Hirst says that it is "often 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" (Hirst, 1974, p.30).

(In *The Logic of Education*, a work co-authored

with R.S. Peters, Hirst relies on a definition of education which is reportive of ordinary language. The analysis of education reached in that text is very nearly equivalent to that employed by Hirst in his own work. I do not believe this to be evidence of any deep misunderstanding on the part of Hirst. I suspect that the chapter in *The Logic of Education* on the concept of education was composed mainly by R.S. Peters, that Hirst was quite happy to see that his stipulative definition of education was nearly in complete agreement with Peters' analysis, and that Hirst would have been prepared to abandon Peters' analysis had it not been in agreement with his definition. I believe that Hirst was concerned to isolate some important features of human development, and that he attempted to do so by showing that a certain achievement, defined stipulatively, is constitutive of the flourishing of persons.)

Hirst bases his definition of a liberal education on a concept which, he claims, was the one held by the ancient Greeks. According to Hirst, the ancient Greeks conceived of education as "concerned simply and directly with the pursuit of knowledge" (Hirst, 1974, p. 31). They conceived of knowledge as divisible into "seven liberal arts" (Hirst, 1974, p. 32). Developing understanding in

each of these areas of knowledge was justified according to the doctrines of epistemological and metaphysical realism. These doctrines held, respectively, that "the mind, in the right use of reason, comes to know the essential nature of things and can apprehend what is real and immutable" (Hirst, 1974, p. 31); and that "it is the peculiar and distinctive activity of the mind, because of its very nature, to pursue knowledge" (Hirst, 1974, p. 30). I need not consider in detail these principles. It is irrelevant to my concerns whether the ancient Greeks actually held them, which Greeks held them, whether they are true, and whether they are the only doctrines of epistemological and metaphysical realism. My only concern here is with why Hirst conceives of liberal education as he does.

Through the acceptance of these doctrines, knowledge was taken by the Greeks to be of great significance because it constitutes the ideal relationship between mind and reality:

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. (Hirst, 1974, p. 33)

Moreover, if a liberal education is defined in the

above way, that is, as explicitly concerned with the acquisition of knowledge, then the pursuit of a liberal education is also justified:

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. <Hirst, 1974, p. 31>

Hirst wishes to retain a conception of liberal education which is very much like that of the ancient Greeks, in that it is concerned with an initiation into the various forms of knowledge, but he wants to show that the pursuit of such an education can be justified without resort to the above realist doctrines. In other words, at the end of the day Hirst will want children to be knowledgeable in the various disciplines of knowledge which are presently manifest, namely, mathematics and logic, the physical sciences, the human sciences and history, literature and the fine arts, morals, religion, and philosophy. But he also wants the justification of such an education to be based on grounds less speculative than the above doctrines about the relations between mind, knowledge, and reality. <Hirst, 1974, p. 33>

Hirst sees two major problems to be solved in

this task. First, he must show why we ought to continue to think of education as an initiation into certain disciplines. If we begin to doubt the position that knowledge must develop the mind "must not liberal education be redefined stating explicitly the qualities of mind and the moral virtues to which it is directed?" (Hirst, 1974, p. 33). This first problem, then, is that of showing the importance of knowledge for the development of mind. If it is possible to develop one's mind without the acquisition of knowledge, if, that is to say, one could become a creative, critical, autonomous thinker without acquiring knowledge, then perhaps educators ought to concern themselves with developing the virtues of creativity, critical thinking, and autonomy in students. Perhaps we ought to begin to think of education not as the acquisition of knowledge, but as the attainment of the various "cognitive virtues".

The second problem facing Hirst is that of showing the importance of acquiring a liberal education, or in his eyes, that of justifying the development of mind. That an education is worth pursuing does not follow from the fact, if it is a fact, that an education is essential to the

development of rationality or mind. *This* achievement must likewise be argued to be worth pursuing. But Hirst is concerned mainly with the first problem, probably because he considers the second issue rather uncontroversial.

(ii) The forms of knowledge

Hirst believes that there are seven or eight logically distinct forms of knowledge. These domains exhaust the areas wherein it is possible to have knowledge. Hirst writes:

. . . by a distinct 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 the individuals to become more fully structured, more fully understood. (Hirst, 1974, p. 44)

Forms of knowledge are distinguishable by three criteria. First, each form of knowledge is characterized by concepts which are "peculiar in character to the form" (Hirst, 1974, p. 44). Each form of knowledge, Hirst believes, is distinguishable according to its central

concepts. For example, in science we have the concepts of "gravity, acceleration, hydrogen, and photo-synthesis;" in mathematics we have the concepts of "number, integral, and matrix;" while in religion we have the concepts of "God, sin, and predestination" (Hirst, 1974, p. 44).

Second, each form of knowledge can be distinguished by the way in which the concepts constitutive of the form of knowledge "form a network of possible relationships in which experience can be understood" (Hirst, 1974, p. 44). A form of knowledge has a "distinctive logical structure" (Hirst, 1974, p. 44), such that "statements can be meaningfully related in certain strictly limited ways only" (Hirst, 1974, p. 44). It is not meaningful, for instance, to say that a number, say the number three, has a particular mass. Numbers are not the sort of things which may have mass.

I do not believe that this second feature of a form of knowledge is independent of the first. Rather, I think that it is only by explicating the relations between concepts that concepts can be distinguished.

Third, a form of knowledge can be distinguished by the sort of tests by which the statements within the form are assessed with respect to their truth value. For example, the sciences are characterised by the fact that

we test scientific claims empirically -- we use our sense experience to test those claims. We test mathematical claims through ratiocination. This third feature of a form of knowledge, Hirst claims, is "central" to distinguishing the various forms. By this I take Hirst to be saying (a) that it is the most important of the three criteria, and (b) that the other criteria can be understood in terms of this one. For example, the central concepts of the physical sciences can be distinguished by the fact that in order to determine whether they are correctly or incorrectly applied we must employ our senses. Moreover, the reason that concepts can be related in some ways but not in others is that it is not clear how we should ascertain whether statements which violate the logic of a discipline are true or not. For example, the reason a statement such as 'colourless green ideas sleep furiously' can be said to be incoherent is because it is unclear how we should begin to ascertain its truth value.

In "Liberal Education and the Nature of Knowledge", where Hirst first presented his thesis, he included a fourth criterion: various forms of knowledge may be distinguished by the methodology of investigation characteristic of work in that form. Later he came to see that this criterion is not essential: "Differences in the

methods used to establish true propositions not surprisingly will follow differences in the character of those propositions. ... But they do not themselves add anything to the strictly logical distinctions which mark out possible forms of knowledge" (Hirst, 1974, p. 86).

Hirst arrived at these criteria by noticing what he took to be logically necessary features of propositions:

. . . (a) concepts appropriately related in a logical structure so that propositions can be formed and (b) criteria for judging the propositions to be true. If we are to logically distinguish types of knowledge we must in fact distinguish areas which are different in respect of their conceptual systems and truth criteria. (Hirst, 1974, p. 60)

The second feature is not really a logically necessary feature of propositions. The criterion for the truth of a proposition is not a *logical* but an *epistemological* property of a proposition. And moreover, it is dubious that all propositions have a truth criterion. What is the criterion for the truth of proposition (3.30)?

(3.30) "On April 13, 1974, an extraterrestrial being, who has the ability, and always exercises it, to thwart our attempts to detect him, stood on the tower of the Empire State Building." (Bradley and Swartz, 1979, p. 167)

But although Hirst may not be distinguishing logically necessary properties of propositions, he does appear to be distinguishing logically necessary properties of knowable

propositions.

If there are these forms, and if knowledge is related to the development of mind in the way in which Hirst suggests that it is, then we are very near to a justification for the pursuit of a liberal education as Hirst conceives of it.

What remains to be shown is that the development of mind is worth pursuing. Hirst offers a transcendental argument to show this. I shall not concern myself in this essay with discussing his argument because it presupposes that Hirst's conception of the relationship between the development of rationality and the acquisition of knowledge is correct. The purpose of this paper is to show that Hirst is wrong about this relationship.

(iii) Rationality, conceptual schemes, and languages

Hirst believes that the development of mind requires the acquisition of knowledge. This position is of great importance for his educational theory. If knowledge is seen as not logically necessary for the development of mind, then his argument that liberal education is significant for the development of rationality, and hence, his argument for the worth of education, both fail. But

what does Hirst mean by the development of mind?

Hirst believes that possessing a mind, possessing a rational mind, possessing a conceptual scheme, and possessing a language are not separable developments:

Being rational I see as a matter of developing conceptual schemes by means of public language in which words are related to our form of life, so that we make objective judgments in relation to some aspect of that form of life. (Hirst, 1974, p. 93)

I am uncertain what to make of the identification of being rational with *developing* conceptual schemes. Surely he does not believe that those who *possess* a conceptual scheme and are no longer developing one are not rational. (Perhaps Hirst believes that we are always developing our conceptual schemes, once we possess them.) I shall treat the above remarks as if he had said that these achievements (the development of rationality, the acquisition of a language, and the acquisition of a conceptual scheme) are equivalent. More accurately, acquiring a public language (such as English, Hindi, or French) involves the acquisition of a conceptual scheme and this is just the same as the development of rationality.

Conceptual schemes are "ways of organizing experience; they are systems of categories from which individuals, cultures, or periods survey the passing

scene" (Davidson, 1973, p. 5). One's conceptual scheme determines how the world appears, or alternatively, it determines what is to count as the world. People with whom one does not share a conceptual scheme will see the world differently, or alternatively, they will see a different world. It is the fact that, for the most part, people think with the same concepts as each other which enables them to think the same thoughts. Were two people to share no concepts there would be no possibility that the two could think the same thoughts.

For example, right now there is an orange hat on the table before me. I am entertaining, correctly, that there is an orange hat on the table before me. It is the fact that I possess certain concepts, namely the concepts of orangeness, hat, and table which enables me to entertain that thought. A visitor without those concepts would not be able to entertain precisely that thought. For example, suppose that the visitor is a man who has been blind since birth. Such a man would surely not have the concept of the colour orange, at least not in a full-blown sense. He would not be able to use the concept to distinguish the orange from the not-orange objects. The blind man might come to entertain that there is a hat on the table (by touching the hat and table with his hands), and, while he

may believe that the hat is orange, he would do so only in a weak sense. Should some reliable person tell him that the hat is orange, he might come to believe that the hat is orange, but he would do so even if the expression 'orange' had no sense or a sense entirely different from its present sense. There is a good sense in which it is correct to say that he cannot believe that the hat is orange in the same way as can a sighted person. This point might be clarified with the distinction between *de dicto* and *de re* beliefs. The blind man may have the *de dicto* belief that there is an orange hat on the table, but he cannot have the *de re* belief that there is an orange hat on the table. He might believe that the sentence 'there is an orange hat on the table' (relativized to time and place) is a true sentence, but he cannot believe, of the hat on the table, that, for any way of describing or conceiving of the colour orange, it is orange. (See Tyler Burge's (1977) "Belief *De Re*" for a discussion of the *de re/de dicto* distinction.)

Of course, sharing a conceptual scheme is not an all or nothing affair. Two individuals might share some proper subset of each other's concepts, or they might share no concepts. So while someone who does not have the concept of a hat could not think that there is a hat on the table,

he might be able to think that there is a wool artifact of a certain shape on the table. He would merely not know what the artifact's function is -- he would not know that that artifact is usually used to cover one's head (though it may be employed in panhandling, or in bailing water out of a leaky dingy). But in the extreme case, where individuals share no concepts, the possibility of thinking even similar thoughts is nil.

Kant was the first to suggest that we experience the world according to a conceptual scheme or "framework" as it is sometimes known. A mind, he thought, is divisible into active and passive faculties: "the former using concepts to 'interpret' what 'the world' imposes on the latter," as Richard Rorty (1969, p. 649) put it. Here we have a model of experience which suggests that there is some sensory "given" which is "interpreted" according to our concepts to be, say, the ringing of a school bell, or a table surface with an orange hat near the far right hand corner. It is our conceptual schemes which make it possible for us to have experience

The acquisition of a conceptual scheme is sometimes thought to be related to the acquisition of a language. Donald Davidson explains the relation between the possession of a conceptual scheme and the possession of a

language in the following way:

. . . if conceptual schemes differ, so do languages. But speakers of different languages may share a conceptual scheme providing there is a way of translating one language into the other. <Davidson, 1973, p. 6>

So, while Frenchmen and Englishmen do not share a language, they may, and no doubt for the most part do, share a conceptual scheme; but those with whom we do not share a conceptual scheme (for example, extraterrestrials and rats) will surely possess different languages if they possess languages at all.

Hirst seems to subscribe to a position very like Davidson's:

. . . whatever private forms of awareness there might 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. <Hirst, 1974, p. 39>

Davidson seems to commit himself to the position that thinking requires both a conceptual scheme and a language by which that conceptual scheme is constituted. He claims that if we do not accept that conceptual schemes are related to languages in the above way, then one of two

unacceptable consequences follow. Either we accept that our minds operate with languages different from our natural languages, in which case we, as Davidson says, "needlessly double" our problem -- no problems would be solved by the acceptance of this position and it seems to conflict with our concern for simplicity -- or we accept that minds can operate without language, and that, insofar as language affects perception and other mental events, it has a perverting effect. This second possibility is obviously untenable if only because it is unable to account for the function of language and for how such an intrinsically harmful thing could have evolved.

Hirst does not commit himself to the position that thought is related to language and to a conceptual scheme in the way in which Davidson suggests. Hirst seems to commit himself only to the position that most thought requires a conceptual scheme and a language: in "Language and Thought" Hirst remarks that

. . . it seems to me beyond dispute that much of our thought is in symbols rather than in anything else, and the majority of it is in words and sentences. . . . Intelligible thought is of something, and I take that to imply that being of something, it is symbolic in character. (Hirst, 1974, p. 71)

In "Liberal Education and the Nature of Knowledge" Hirst did not commit himself to saying that all thinking requires a conceptual scheme. He said only that:

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. <Hirst, 1974, p. 39>

It would seem, then, that Hirst is not concerned to say that *all* mental activity requires language and a conceptual scheme. He wants to say only that *rational* thought involves a language and a conceptual scheme.

Although, for Hirst, the development of a rational mind and the development of a mind are not quite the same, he allows himself to use the expressions synonymously because he is not especially concerned with non-rational mental activity.

So the position Hirst holds is that the development of rationality requires the acquisition of language and the acquisition of a conceptual scheme. These achievements are equivalent to each other in the sense that the acquisition of any one of these achievements implies the acquisition of the others.

(iv) The acquisition of knowledge and the development of rationality

Hirst believes that acquiring a conceptual scheme and acquiring knowledge are not distinguishable. Clearly, the

acquisition of knowledge will *sometimes* involve the acquisition or development of a conceptual scheme. Part of what is involved in, say, acquiring geometrical knowledge is the acquisition of certain concepts and the acquisition of the ability to apply those concepts. One would, for instance, require the concepts of triangle, polygon, line, angle, and length.

The most complete account of the acquisition of knowledge Hirst offers is in his "The Nature and Structure of Curriculum Objectives". The acquisition of knowledge, he claims,

. . . involves learning many different concepts, using these in a growing awareness of facts, truths, and norms of many kinds, mastering many logical operations and principles, applying the criteria of different types of judgement and so on. (Hirst, 1974, p. 22)

Several points are relevant here.

First, it is obvious that Hirst is concerned less with the acquisition of isolated items of knowledge than he is with the acquisition of bodies of knowledge. That is to say, Hirst is concerned more with the learning of history, science, and mathematics *as a whole*, than he is with learning of individual facts, such as the fact that Aristotle was the teacher of Alexander the Great, that vixen are carnivorous, and that the four angles of a rectangle are right angles. Acquiring knowledge of any of

these propositions will only *sometimes* require achievements of the sorts listed by Hirst above. Often, in cases where S already possesses all the relevant concepts and is familiar with the relevant truth criteria, S will not need to do a great deal of learning in order to acquire knowledge of the above propositions (about Aristotle, vixen, and rectangles).

Second, it seems clear that Hirst is correct to say that in learning a body of knowledge, such as history, one will require learning of the sort Hirst mentions on his page 22. To learn history one must learn many concepts, many facts, many norms, and so on. In other words, Hirst is correct in believing that the acquisition of a body of knowledge necessitates learning of the sort he mentions -- Hirst does list *necessary* conditions of learning a subject.

Third, it seems clear that acquiring a body of knowledge, or even knowledge of a single proposition, is sufficient for the possession of a conceptual scheme. In other words, anyone who possesses knowledge must also, at least to some extent, possess a conceptual scheme. Without concepts and criteria for their application a man could not even think thoughts, let alone actually have knowledge.

But Hirst cannot be content with showing that knowledge requires a conceptual scheme. Hirst must in addition show that only through the acquisition of knowledge may an individual acquire a conceptual scheme or develop a rational mind. Hirst does not argue anywhere, so far as I can determine, for this position.

I do not think that Hirst is correct to believe that acquiring knowledge is necessary for the acquisition of a conceptual scheme or for the development of rationality. In Chapter II, I will attempt to show that rationality is actually a pre-condition of the acquisition of knowledge.

## CHAPTER II

### KNOWLEDGE AND RATIONALITY

In this chapter I will try to show that Hirst's position on the relationship between the acquisition of knowledge and the development of rationality is mistaken. I shall do so by showing that the acquisition of knowledge pre-supposes rationality. Hirst's argument for the worthwhileness of liberal education requires that the acquisition of knowledge is a necessary condition of the development of rationality. If it is true that rationality is a presupposition of, yet does not itself pre-suppose, the acquisition of knowledge, then Hirst's argument fails. It is not possible, if I am right, to show that education is worthwhile by showing that rationality is worthwhile.

#### (i) Education and propositional knowledge

One could be said to know propositions, persons and physical objects, and how to do certain things. A man who knows that Rome is in Italy, who stole the Albinioni phonographs, how the eye works, what it takes to bribe a

magistrate, or why the student lied to her professor, has what I will call *propositional knowledge*. The logical object of propositional knowledge is a proposition; when someone has propositional knowledge *what* he knows is the bearer of a truth value. A man who knows President Reagan or the city of Victoria, British Columbia, has what I will call *knowledge by acquaintance* or alternatively, *knowledge with a direct object*. A man who knows how to repair an automobile, how to skin a cat, or how to secure a confession from a prisoner has *procedural knowledge*. A fourth sort of knowledge which may or may not be a kind of knowledge by acquaintance is *carnal knowledge*.

It is plausible to suggest that acquaintance knowledge is reducible to propositional knowledge. When a man knows President Reagan he knows a number of propositions about Reagan's physical appearance, his past life, his character, his abilities, his inadequacies, and his values, beliefs, and desires. To be sure, knowing Reagan suggests not only that one knows a number of truths about Reagan, but also that one has met and become acquainted with Reagan. What acquaintance knowledge suggests is, in Hirst's words, an "existential awareness" (Hirst, 1974, p. 57) of the object, in this case President

Reagan. Acquaintance knowledge differs from propositional knowledge not with respect to *what* is known so much as with respect to the manner in which one acquired that knowledge.

Procedural knowledge does not seem to be reducible to propositional knowledge. Knowing how to swim, for example, may involve knowing that a number of propositions are true, (for example, that one should cup one's palms, turn one's head to breathe, and so on), but it also involves having the ability to get in the water and swim. I once heard a story, the veracity of which cannot be guaranteed, of a Yale University swim coach who, though quite successful as a coach, could not himself swim. One could also imagine a man, who, though once an excellent swimmer, is now a quadriplegic and would drown if dropped in the pool. Do these people know how to swim? I am not certain what to say here. But insofar as procedural knowledge differs from propositional knowledge it is not included in Hirst's conception of liberal education.

Hirst claims that as educators we are not concerned with procedural knowledge (or *practical knowledge* as he calls it (Hirst, 1974, p. 85).) If education is conceived of as an initiation into the various forms of knowledge, then it seems that he is correct. To learn a

subject such as history is to learn a number of true propositions, how those propositions are interconnected, and how they are to be verified. This can all be described in terms of propositional knowledge.

Hirst explicitly denies that knowing how to generate more knowledge in a discipline is a requirement of liberal education:

. . . <Liberal education> is not 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. <Hirst, 1974, p. 47>

So the exclusion of the concern for procedural knowledge from the educator is a consequence of Hirst's stipulative definition of a liberal education.

Of course, Hirst or anyone else would be silly to say that as liberal educators we are entirely uninterested in the acquisition of procedural knowledge. At least some sorts of procedural knowledge are pre-requisites of education. We need mention only the abilities of reading and writing and counting. These abilities are not constitutive of a liberal education (that is, unless one believes that the ability to count involves mathematical knowledge). These abilities are skills which, while not logically essential to a liberal education, are

virtually *causally* essential in acquiring one. An illiterate may even come to understand the philosophy of David Hume, but such an achievement would obviously be so much easier were one to possess good reading skills. For an illiterate coming to understand Hume would be difficult inasmuch as illiteracy would rule out attending most universities, and would require that someone else either read Hume's philosophical works to one, or teaches one Hume's thought on various philosophical problems. What should be said, I think, is that certain skills and abilities are *practically* necessary for the attainment of a liberal education.

It is propositional knowledge with which I shall be concerned in this chapter. The problem with which I am concerned is that of showing that Hirst is wrong to identify the acquisition of propositional knowledge with the development of rationality.

(ii) The analysis of propositional knowledge

A complete account of propositional knowledge (which shall henceforward be referred to simply as 'knowledge') is far beyond my requirements. In this section I will content myself with describing some of the necessary conditions of

the possession of knowledge.

'Propositional knowledge' is not univocal. In *Possible Worlds* Bradley and Swartz show that the expression could be used to refer to acquaintance with a proposition or to refer to knowing that a proposition has a particular truth value <1979, pp. 130-1>. A man could know, to use one of Bradley and Swartz's examples, all the axioms of Euclidean Geometry in the sense, (a) that he has become acquainted with those axioms, or (b) that he knows the truth value of those axioms. The former is a sample of what I have called 'knowledge by acquaintance', while the latter is a sample of what I have named 'propositional knowledge'. And it is the latter with which I am concerned.

In *Conditions of Knowledge* Israel Scheffler introduces a sample definition of "knowing that" (which is his term for propositional knowledge); then goes on in the ensuing chapters to elaborate upon and adjust that definition. A person, *X*, knows that *Q*, he says,

- if and only if
- (i) *X* believes that *Q*,
  - (ii) *X* has adequate evidence that *Q*,
  - and (iii) *Q* <Scheffler, 1975, p. 21>

The first condition is called the *belief condition*, the second is called the *evidence condition*, and the third is called the *truth condition*.

Scheffler borrows from Jaakko Hintikka <1962, pp. 18-9> a distinction between a weak and a strong sense of knowledge that:

In the weak sense, *knowing that* depends solely on having true belief, in the strong sense it requires something further -- for example, the ability to back up the belief in a relevant manner, to bring evidence in its support, or to show that one is in a position to know what it affirms. <Scheffler, 1975, p. 9>

Accordingly, Scheffler would, for the weak sense of knowledge that, withdraw the second condition of the above definition. An example of knowledge in the weak sense would be a man who believes very strongly that his estranged wife will return to him. This he believes with no evidence or reason whatsoever. When at last his wife does return to him he tells us that he "just knew" that she would return to him.

There appear to be two possibilities here. It could be insisted that this man, despite his protests, really has no knowledge. It could be said that the man does not really know what it is to have knowledge. To cite a parrallel, students often make the mistake of confusing inference with implication. They often say such things as "Hobbes' statement infers that he assented to psychological hedonism" when they ought to have said "Hobbes' statement *implies* that he assented to psychological hedonism." The frequency of the error does

not make the error permissible. So insisting that knowledge involves evidence for one's belief, despite the fact that much of what people say conflicts with this, need not be arbitrary. Moreover, there are good reasons for insisting that the possession of knowledge requires the possession of reasons for one's beliefs. If it is not a requirement of the possession of knowledge that knowers have reasons for their knowledge beliefs, then there would be nothing to distinguish knowledge from correct belief. And there are good reasons for wishing not to blur this distinction. The concept of knowledge is important in the attribution of authority and expertise to individuals. It is important that those with mere correct beliefs are distinguished from those with knowledge because it is latter to whom authority is reasonably assigned. The possession of knowledge suggests a sort of competence in a domain; the possession of mere correct belief does not suggest this. The idea of competence is, in turn, important in the assignment of authority to individuals. Perhaps I am correct to insist that knowledge involve evidence. The second possibility is that, with Hintikka and Scheffler, it is agreed that there are two sorts of knowledge.

I do not think that it is necessary to resolve this

issue here. If it does make good sense to speak of two senses of knowledge, then educators are concerned with the strong sense of knowledge. Educators want children (and adults) to believe what they believe for reasons. Knowing a subject such as History means more than believing very strongly certain facts. It also involves having reasons for those facts.

I think that Scheffler's requirement that, for the possession of knowledge in the strong sense one must be able to back up one's belief in the relevant manner, or bring evidence to bear in its support, or show that one is in a position to know what it affirms, is too restrictive. The criterion for the possession of knowledge in the strong sense is slightly weaker than that suggested by Scheffler. Scheffler's analysis rules out that children, for example, who are notoriously unable to justify their beliefs, can possess knowledge in the strong sense. But clearly children can possess knowledge in the strong sense. A safer way of stating the relation which must obtain between one's belief and the evidence or reasons for that belief, if that belief is to count as a knowledge belief, is to say that one must see the evidence as evidence: One need not be able to articulate the reasons which support the proposition.

(I ought to mention, parenthetically, that I am aware that there is a fair amount of agreement that the "standard analysis" is inadequate in at least one important respect. I am thinking of Edmund Gettier's counter-examples to definitions similar to Scheffler's. In his "Is Justified True Belief Knowledge?" Gettier <1963> shows that the above, standard, analysis suggests only three necessary conditions of knowledge and that those three conditions are not sufficient. I need not undertake to determine what the fourth condition of knowledge is.

There is another way in which the definition is inadequate. The definiendum, 'knowledge', is defined as justified (or evident) true belief. But the terms in this definiens are not particularly better understood than the definiendum. If one did not understand the notion of belief, for example, this definition would be of little help. Moreover, problems about the nature of belief run about as deep as any problems in philosophy. It is also somewhat unclear what is meant by 'evidence' or 'justified'. How does one determine whether a proposition is evident or not? Again, the nature of truth is fiercely debated in philosophy. Such debate shows that there is a deep level at which the concept of truth is not very well understood.

Of course, to deal with these problems fully would involve recapitulating epistemology. And it is doubtful that any of the problems can be solved once and for all. (Hilary Putnam <1981> has gone so far as to argue that there are no irrefutable philosophical positions.) In any event, in due course I will touch on these matters again.

(iii) Annis on Knowledge, Belief, and Rationality

In "Knowledge, Belief, and Rationality" David Annis argues that what he calls the *entailment thesis* is false. The entailment thesis states that:

Necessarily, for any person *S*, time *t*, and proposition *h*, if *S* knows that *h* at *t*, then *S* believes that *h* at *t*. <Annis, 1977, p. 217>

In contrast to the entailment thesis, Annis argues that:

The relation between knowledge and belief is more complex than simple entailment. Instead it is a normative relation governed by principles of rational belief and what constitutes the normal case. <Annis, 1977, p. 224>

Hence,

. . . when we discover that <a> person is not rational . . . we are willing to say that he knows even though he may not believe. <Annis, 1977, p. 224>

Annis' argument is by counter-example though he supports his conclusion with explanation. Annis, in presenting his argument, employs the notion of a person's

*evidential position* with respect to a proposition *h*. The statement of a person's evidential position with respect to a proposition *h* is a statement of whether or not that person is in a position to know *h*.

Annis says that:

S's nonbasic belief that *h* is epistemically justified if and only if there is a set of propositions  $e_1, e_2, \dots, e_n$  such that

- (1) For each  $e_i$  ( $i = 1, 2, \dots, n$ ) S believes that  $e_i$ .
- (2) For each  $e_i$ , S is justified in believing  $e_i$ .
- (3) S believes that *h* on the basis of  $e_1, e_2, \dots, e_n$ .
- (4) The set  $e_1, e_2, \dots, e_n$  provides adequate support for *h*.
- (5) There is no other set of propositions  $e'_1, e'_2, \dots, e'_n$  such that S believes the elements of the set and the conjunction of these elements with  $e_1, e_2, \dots, e_n$  does not provide adequate support for *h*. (Annis, 1977, p. 218)

(1)-(5) specify the relation which must obtain between S's belief *h* and the evidence which can be brought to bear in justifying that belief. In the formulation offered by Scheffler there was no mention of the fact that, if S knows *h*, then S must believe *h* in virtue of the evidence which supports *h*. I believe this to be a shortcoming of Scheffler's analysis.

Annis notes that (3) must be amended to delete its doxastic import. Annis wants to argue that S might know *h* though S does not believe that *h*. It

will not do, then, to write into his account of epistemic justification that S must believe *h*. Accordingly

(3) is to be replaced by (3'):

(3') If S were to believe that *h*, then his belief would be based on  $e_1, e_2, \dots, e_n$  (Annis, 1977, p. 219).

It might be noticed that this account of justification is *propositional*. Annis assumes that a proposition is always justified by some other proposition. This position need not be accepted. As Bradley and Swartz point out:

If we were to allow, for instance, that experience itself -- not just propositions about experience -- could justify belief in the truth of a proposition, the bonds of propositional justification would be broken. Or again if we were to allow that the exercise of reason -- not just propositions about the exercise of reason -- could justify belief in the truth of a proposition, once more we could avoid both circularity and infinite regression. (Bradley and Swartz, 1979, p. 137)

Annis' employment of a propositional account of justification need not prevent a more detailed examination of his argument. (Perhaps Annis' acceptance of propositional justification is applicable only to nonbasic propositions. But he does not explain what he means by 'nonbasic proposition'.) The points he makes are just as applicable to non-propositional accounts of justification such as the one suggested by Bradley and Swartz.

Some evidential positions are *knowledge-giving*:

A knowledge-giving evidential position for a person S at t with respect to the nonbasic statement h is a position that justifies S in believing h at t (that is, a position that satisfies the above five conditions <(1), (2), (3'), (4), and (5)>) so that if the other conditions of knowledge obtained, S would know that h. (I assume that these other conditions would at least include the truth of h and S's evidential position being indefeasible.) <Annis, 1977, p. 219>

Annis's argument, as I said, is by counter-example.

He suggests a case where a person who is in a knowledge-giving evidential position with respect to a true proposition (where that evidential position is indefeasible). The person, however, does not believe that proposition:

For example, suppose that Inspector Smith is asked to investigate a murder. He discovers certain facts (fingerprints, motive, opportunity and so on) and reasons properly from them to the conclusion that Jones killed the victim. As a result of this Smith comes to believe that Jones is guilty (h). Conditions 1, 2, 3', 4, and 5 are thus satisfied. If we assume that the other conditions for knowledge obtain, then Smith knows that h.

Now suppose Jones Jr. is Smith's assistant. He too is aware of all the evidence and that it indicates his father is guilty; that is, he has correctly appraised the evidence. Nor does he have any counter-evidence. Furthermore, if he were to believe h, then the reasons for which he would believe it would be the evidence that both he and Smith possess. Since they are in the same knowledge-giving evidential position with respect to h and Smith knows, it seems that Jones Jr. knows too. But suppose that he does not come to have the belief that h. <Annis, 1977, p. 220>

The problem which this example presents is that of determining whether our belief (or perhaps 'intuition'

would be the more appropriate expression) that Jones Jr. does not *really* know can be supported. Annis believes that this example cannot be reconciled with the entailment thesis, and moreover, he believes that he can explain the intuition that if Jones Jr. knows *h* then he must believe *h*.

Annis believes that we are inclined to infer from the fact that Jones Jr. does not believe that *h* to the conclusion that he does not know *h* because we assume that Jones Jr. is rational. If the assumption proves erroneous, that is, if we learn that Jones Jr. is irrational, then the position that Jones Jr. knows *h* but does not believe *h* is not so disturbing. A rational person will believe what he knows but an irrational person may not.

But Annis' position is inadequate on at least two points. First, Annis does not fully appreciate the consequences of the assumption of rationality implicit in the assessment of an agent's epistemic and doxastic state. There are some things which an irrational person cannot do. This is the point Kenneth Stern makes in his reply to Annis' paper:

. . . it can, I think, be plausibly argued that in the example given by Annis, the fact that Jones Jr. does not believe *h* gives good reason to suppose that he does not know *h* either. The reason is just

that given by Annis, namely that given the presumably overwhelming evidence Jones Jr. has for *h*, his disbelief or non-belief of *h* is very good evidence for his (Jones Jr.'s) irrationality, except that such irrationality is, I would argue reason to think that he does not despite his evidence, really know *h*. After all, if Jones Jr. is really so irrational as not to believe what he is overwhelmingly warranted in believing, then just that irrationality is ample reason to think that his appreciation or evaluation of the evidence is defective enough for us to have grave doubts as to whether he does in fact know what he has so much evidence for. <Stern, 1979, p. 214>

Annis' description of a knowledge-giving evidential position demands not the mere possession of evidence but also the assessment of that evidence. Stern continues:

. . . <Annis> fails . . . properly to appreciate how *S*'s irrationality might prevent such proper appraisal. In order properly to appraise the evidence, i.e. put the facts together, understand their significance, and so on; rationality is necessary, and the failure on the part of *S* to believe *h* when the facts in his possession point so overwhelmingly to *h* indicates strongly that *S* does not have the requisite rationality. <Stern, 1979, p. 214-5>

In the ensuing sections I will examine the assumption of rationality in appraising an agent's epistemic and doxastic state. For now I need merely point out that the assumption of rationality in the ascription of knowledge is much deeper than Annis notices.

A second problem with Annis' account of the relations between knowledge, belief, and rationality is his identification of knowledge that *h* with being in an indefeasible knowledge-giving evidential position with

respect to h. Stern, in his response to Annis implicitly accepts such an identification. Such an identification allows that one could know a proposition which one does not believe. But what is the purpose of saying that someone has knowledge? Why is it considered important to determine whether or not an individual has knowledge? At least part of the reason there is an interest in assessing a person's epistemic state is to determine whether his pronouncements in that domain are likely to be true. We are interested in determining whether he is competent to make certain pronouncements. If we choose to allow that, for example, Jones Jr. and Smith both possess knowledge we deprive ourselves of this ability. It makes a great deal of difference whether we consult Jones Jr. or Smith. And that is simply because Smith believes but Jones Jr. does not.

This is not a mere question-begging reply to Annis. One of the conditions we should place on our account of a concept is that that account should capture at least the central functions of that concept. Annis' account of the concept of knowledge does not do justice to our concept of knowledge. It is very important, sometimes, that we know whether Jones Jr. knows or not. Annis' account would force us to deny this.

(iv) Rationality

The principal reason for rejecting Annis' account of the relation between knowledge and belief is that an assumption of rationality on the part of S is as implicit in attributing knowledge to S as it is in the inference from S knowing *h* to S believing.

*h*. Irrational people, Annis wants to say, do not necessarily believe what they know. Against this I urge that without the assumption of rationality the attribution of knowledge is likewise undermined.

Of course, rationality and irrationality are matters of degree. People are irrational to varying degrees and most of us are irrational sometimes. Some people are more rational in certain domains (such as science or ethics) than they are in other domains (such as religion). Some people are more likely to be irrational in certain circumstances (such as while engaged in an ice hockey match) than they are in other circumstances (for example, in a court of law).

Clearly, however, one does not lose all one's

knowledge on each and every occasion that one falls short of the demands of rationality. Nor does one suddenly regain all the knowledge one has lost when one's rationality is restored. A person's knowledge is a more or less permanent possession. For example, I learned years ago that Canada is the second largest state in the world. I have known that fact for many years. Obviously, though, I have not managed to refrain from falling short of the demands of rationality for all these years. I have often, indeed very often, failed to satisfy those demands. So how can it be maintained that the assumption of rationality is necessary in the attribution of knowledge?

The answer, I think, is that in attributing knowledge to a person we do not assume that he is rational at all times in every way. What is assumed in the attribution of knowledge is that the person to whom knowledge is attributed is a *rational person*. By this I mean that his life is governed by the norms and concerns implicit in rationality. R.S. Peters has written that:

Integral to the life of reason are a related set of norms or standards with a range of correlative attitudes and concerns. What marks off rationality, as a level of life distinct from the non-rational, the irrational and the unreasonable, is the continual influence and interaction of these norms and concerns. <Peters, 1974, p. 125>

Peters distinguishes "three aspects of the operation of

the norms of reason" (Peters, 1974, p. 125). It will be instructive to examine Peters' account of rationality.

A rational individual, says Peters, has a concern for consistency. When a rational individual discovers or learns that his beliefs or values are inconsistent he takes steps to correct himself.

If something turns up which is novel he has either to latch on to some feature or similarity which will enable it to be subsumed under his existing assumptions, or, if it is too discrepant to be fitted in, he has to make an appropriate alteration to his assumptions. (Peters, 1974, p. 125)

Moreover, a rational person does not merely remove inconsistencies from his beliefs, he also avoids inconsistencies in forming his beliefs.

I do not think that this should be taken to mean that a rational person will always insist that his beliefs are consistent with each other. Sometimes the best a man can do is to allow some inconsistencies into his beliefs. A man may not know how to remove all inconsistencies. What a rational man must do is remove any inconsistencies which he is able to remove, and he must find the state of holding inconsistent beliefs or values profoundly disagreeable. A rational person will exhibit a serious concern to avoid contradiction.

Second, the rational person, claims Peters,

. . . has a well-defined sense of what counts as a

relevant consideration in the various contexts of belief-formation and choice. What counts as relevant can be given in a generalization, as for instance a meteorological generalisation which indicates relevant grounds for a prediction that it is going to rain; or it may be given in a rule of conduct that indicates, say, the circumstances in which one ought to be polite. To accept such standards of relevance is to be disposed to take account of the considerations in question when they crop up, and to reject as partial or arbitrary choices or beliefs based on other considerations, such as may be suggested by extrinsic attractions or aversions. <Peters, 1974, p. 125>

What Peters appears to be saying here is that the rational individual understands when a consideration is relevant to whether he ought to accept or reject a given proposition. For example, the rational man understands that it does not matter whether one checks on Tuesday or Wednesday to see that an animal has teeth. An animal's possession of teeth does not, in normal circumstances, vary with the day of the week. The day of the week, in circumstances such as these, is irrelevant.

Peters' example of meteorological prediction seems odd. Could it be that Peters holds that only those who understand meteorology are candidates for rationality? If he does hold this his account of rationality, must, by any reasonable criterion, be judged to be too stringent. Very few people understand meteorology, and I doubt that we should want to say that those people who do are more fully rational on that account, nor should we say that those who

do not understand meteorology are less fully rational on that account. But I do not believe that this is what Peters holds. I think that Peters is saying something about what the rational person is like *when* he holds beliefs. A rational person does not hold beliefs for irrelevant or arbitrary reasons. It is irrational, for example, to believe that Christ is the son of God (whatever that might mean) because of the reasoning involved in "Pascal's Wager". Those "reasons" are irrelevant to whether Christ is the son of God. A rational person is one who will accept or reject his belief that it is going to rain for relevant reasons.

Moreover, I do not believe that Peters means technical meteorological understanding. Such generalisations as "black clouds in the west mean rain" would should count as a meteorological generalisation.

A rational man's belief is held with the confidence that the evidence warrants. If he holds a great deal of first-hand evidence (he sees dark clouds in the west, the barometer is falling, and so on) then he may place a great deal of confidence in his belief that it is going to rain; but if he has weak second-hand evidence (such as the prediction of an old crank) his belief will be held with less confidence. The rational man will not believe that it

is going to rain for crazy "reasons", such as the fact that a long-legged black spider has just been drowned. The rational man accepts that there is no relation between the drowning of a spider and the forthcoming weather.

Of course, the statement of this aspect of rationality is formal. A substantive statement of this aspect of rationality would make explicit the standards of relevant evidence. Peters does not tell us what counts as a relevant consideration for our various beliefs. To do so would involve giving the truth conditions for many propositions. What Peters does do is tell us that insofar as one is rational, then one will hold beliefs in light of relevant circumstances.

"An active enquiring and critical spirit" (Peters, 1974, p. 126) is the third aspect in Peters' account of rationality. The rational person is concerned not only to adjust his assumptions and procedures in virtue of discrepant evidence, he is also concerned to seek out new evidence in light of which he can assess those assumptions and procedures:

. . . the tendency to adapt assumptions to novel situations develops into the conscious attempt to check assumptions -- nurtured, perhaps, by a caution born of past experience of being in error. . . . instead of just being brought up short by the givenness of the world and having to accommodate to it if the novelty is to be dealt with, the individual becomes much more concerned about the warrants for his

stock of assumptions and rules. <Peters, 1974, p. 126>  
 The rational man, say Peters, "looks for evidence"  
 <Peters, 1974, p. 127>.

For Peters, then, rationality is a matter of accepting the "normative demands of consistency, relevance, impartiality <which for Peters is implicit in the relevance condition of rationality>, and the search for grounds of belief and decision" <Peters, 1974, p. 127>.

The rational person, of course, may not always satisfy all the above demands. Rational people are sometimes *irrational*. By this I mean that on particular occasions a rational person will believe what is inconsistent with his other beliefs, or he may believe what he wants to believe rather than what he has good grounds to believe. Irrationality is a "disease or perturbation of reason" <Davidson, 1982, p. 321>. We say that something is *non-rational* when its behavior is not at all governed by the demands of rationality. A tree, for example, is non-rational -- it does not do as it does because it sees good reason to do so, or even because it sees poor reason to do so. Similarly, many of a person's movements are best understood as non-rational -- for example, a man does not regulate his heartbeat because he

sees good reason to do so; nor does he perspire because he sees good reasons to do so. Much of our movement is taken care of without the barest consideration of reasons.

It is apparent that a rational person will be irrational only as the exception. That is, it would be difficult to insist that, though Jane often contradicts herself, believes for poor, irrelevant, or *ad hoc* reasons, she is nevertheless rational. An analogous case would be that Mary, though she prefers strawberry ice cream, seldom chooses strawberry ice cream. (Assume that Mary is not being forced, that she is not merely exercising her will power, that she is not allergic to strawberry ice cream, or is not otherwise peculiar.) Rational persons prefer, *ceteris paribus*, to satisfy the above conditions. Hence, when one says that a man is rational, one is saying that he holds certain values, namely that he satisfies the above conditions of rationality.

In saying that a man is rational we are also attributing to him certain abilities. It would be useless to say that though Sally is not often able to determine whether or not information is relevant to her beliefs, she is nevertheless rational in that she would like to hold her beliefs on the basis of relevant reasons. Rational

persons do not merely like to be consistent, impartial, and so on; they moreover, at least some of the time, possess the capacity and the ability to be so.

Peters is concerned with aspects of a rational individual, not with criteria for rational belief. Of course, the two notions are connected, but they need not be equated. Rational individuals want to possess, and often if not usually, will possess rational beliefs. Peters is concerned to describe some dispositions or virtues of the rational person. The rational person will attempt to hold beliefs on the basis of relevant considerations, but this is compatible with any number of conceptions of what counts as a relevant consideration. Peters does not, in the above account, commit himself to any particular account of what counts as a relevant consideration in belief-formation. Peters' account is, as I said, *formal* in that he says only that a rational man must possess a well-defined sense of relevance; Peters does not offer a *substantive* account of that sense of relevance.

Peters' account of rationality is adequate in that it offers standards which any conception of rationality, worthy of that title, must satisfy. But it is inadequate insofar as it would be of little or no use to one who did

not possess the ability to assess evidence, be critical, and so on. As to whether Peters has offered genuine formal constraints on a conception of rationality, I think, the proper reply is that without the concerns of consistency, relevance, impartiality, and so on, the activity of arguing would be chimerical. In *Reason, Truth, and History* Putnam says,

I want to urge that there is all the difference in the world between an opponent who has the fundamental intellectual virtues of open-mindedness, respect for reason, and self-criticism, and one who does not; between an opponent who has an impressive and pertinent store of factual knowledge, and one who does not; between an opponent who merely gives vent to his feelings and fantasies (which is all people commonly do in what passes for political discussion), and one who reasons carefully. <Putnam, 1981, p. 166>

Without these virtues about which Putnam and Peters are concerned there could be no such thing as argument, and argument is at least a central aspect of the rational life.

#### (v) Rationality and knowledge

Hirst's argument requires that only by acquiring knowledge is it possible for a man to become rational, and that only by acquiring more knowledge is it possible to become more rational. I think that Hirst is wrong about this. I believe that it is only by being rational that one can

acquire any knowledge whatsoever.

I have said that S knows that *p* only if (i) *p*; (ii) S believes that *p*; and (iii) S's belief that *p* is held in virtue of good evidence. It is the third condition of knowledge which necessitates that S be rational, though a fair degree of consistency in one's beliefs may be a requirement of possessing any beliefs at all. (See Donald Davidson <1982>, "Rational Animals", for a discussion of this point.) Rationality, it has been said, has three aspects: (a) the disposition to avoid inconsistency; (b) the disposition and ability to assess and evaluate evidence; and (c) a critical attitude toward one's beliefs and assumptions.

It is readily apparent that (b) is a requirement of the acquisition of knowledge. Condition (iii) of knowledge demands that one hold one's beliefs in virtue of good evidence. This aspect of rationality must be satisfied by anyone who has knowledge.

To see why a man who does not have the disposition to hold consistent beliefs could not be said to satisfy the evidence condition of knowledge, consider a man who does not have such a disposition. Suppose that he believes that the mineral before him is Flourite. Just to be sure, he

checks the sample's hardness and specific gravity. He learns that the sample has a specific gravity of 2.8 and a hardness (on the Mohs scale) of about 2.3. Flourite is known to have a specific gravity of 3.18 and a hardness of 4. The rational man will come to believe that the sample is not Flourite. But a man who does not have the disposition to be consistent may not come to the belief that the sample is not Flourite. For such a man there would be no problem in believing (a) Flourite has a specific gravity of 3.18 and a hardness of 4; (b) the sample is Flourite; and (c) The sample has a specific gravity of 2.8 and a hardness of 2.3. This man's lack of a disposition to form consistent beliefs prevents him from using the evidence he possesses to come to the correct belief that the sample is not Flourite.

I think that the interpretation of evidence will always involve the assumption that inconsistency is a very poor state in which to be. Seeing something,  $e$ , as evidence for a proposition,  $p$ , is to see that  $e$  satisfies a standard,  $E$ , such that, were that standard satisfied, it is probable that  $p$  is true. But a man who did not have a disposition toward consistency would have no problem believing (a) that  $p$  is probabilified only by evidence which satisfies standard  $E$ ; (b) that

$E$  is not satisfied; and (c)  $p$  is probable. But these three beliefs are inconsistent. One of them must be rejected. But a lack of concern for consistency will prevent one from seeing this, and hence will prevent one from rejecting (or accepting) beliefs on the basis of evidence.

In order to have knowledge that  $p$ ,  $S$  must believe that  $p$  is true in virtue of good evidence. It is not sufficient that  $S$  possess that good evidence.  $S$  must also see that evidence as good evidence. This requirement of knowledge is what makes a critical attitude essential to the acquisition of knowledge.

In requiring evidence for one's belief that a proposition  $p$  is true one believes that the probability of the truth of  $p$  is raised if particular states of affairs obtain. For example, the proposition that the King's death is not an accident is more probable if there are traces of rat poison in his body. Traces of rat poison in the King's body is evidence that his death was not accidental because a normal body will not reveal such traces and because it is not likely that the rat poison got there by accident. (Few people would store rat poison in a place where it is likely to be mistaken for the salad dressing.) Were it later discovered that there

was an error made in the autopsy of the King's body, that what was thought to be rat poison was as a matter of fact really low quality whiskey, then one should (barring the possibility that there is other sufficient evidence for the proposition that the King's death was not accidental) revive the belief that the King's death was not accidental, or at least hold that belief with less sureness. To require evidence for the proposition that the King's death was accidental is to believe that if particular states of affairs obtain that proposition is likely to be true, and that if other states of affairs obtain that proposition is less likely to be true.

The person who adjusts his beliefs in virtue of evidence has a critical attitude. Hence, knowledge that  $p$  requires a critical attitude toward  $p$ . This does not mean that one who knows that  $p$  must also doubt that  $p$ . It means that one who knows that  $p$  has an open mind to evidence for and against  $p$ . Moreover, while I think that it would be far too stringent to demand that one must constantly be searching for evidence to undermine what one believes oneself to know, one must be concerned that the reasons in virtue of which one believes that  $p$  are indeed good reasons for believing  $p$ . This is to possess a critical attitude.

If the foregoing is correct, it is possible that *S* acquires the knowledge that *p* only if *S* is rational. I argued this by arguing that *S* knows that *p* only if three conditions obtain, and by arguing that there are three aspects of rationality. Only if *S* satisfies all three aspects of rationality is it possible for him to acquire knowledge. I focussed, in my discussion, on one condition of knowledge, the evidence condition. Rationality, then, is a condition of the acquisition of knowledge.

It may at this point be objected that showing that only rational agents can acquire knowledge does not show that rationality can be developed apart from the acquisition of knowledge. It may be, this objection runs, that knowledge and rationality are acquired simultaneously.

A little reflection, however, shows the objection misses the mark. My argument is that *rationality* is logically presupposed by the *acquisition of knowledge*. Had I argued that rationality is logically presupposed by the *possession of knowledge*, then perhaps a case could be made for saying that knowledge and rationality are equivalent acquisitions. At any rate, my argument would not have ruled out such a position. My argument is

that one must have the dispositions and abilities characteristic of the rational individual in order to acquire beliefs which satisfy the criteria of knowledge.

Let me make this point in another way. The acquisition of knowledge is an event. At one time *S* does not know that *p* and at a later time *S* does know that *p*. In order that this event occur, *S* must have the dispositions and abilities characteristic of rationality. Otherwise, *S* will not be able to perform the mental acts required in coming to know that *p*. For this reason, *S* must be rational in order to acquire knowledge.

It may also be objected that reasoning, which is at least a central feature of rationality, requires knowledge. Reasoning requires, the objector may insist, knowing principles of reasoning and it will require knowledge from which to reason. But if reasoning (a) is a central feature of rationality, and (b) involves knowledge, then rationality involves knowledge. That is to say, the possession of knowledge is a necessary condition of rationality. But if it is true that the possession of knowledge is a necessary condition of rationality, then because, as has already been shown, the possession of knowledge implies rationality, rationality is materially

equivalent to the possession of knowledge. And if this is so, then Hirst's position, that one is rational just insofar as one possesses knowledge must be agreed to hold.

But the argument fails on at least three points.

First, while reasoning does involve the employment of principles of reasoning, such as *modus ponens* or principles of induction, it does not imply the possession of propositional knowledge with respect to those principles. One can employ the principle *modus ponens* in one's thinking without having any idea how to justify its employment. Indeed, the principle is employed daily by multitudes of people who have never even considered the principle in the abstract. Reasoning with the principle *modus ponens* involves being able to apply the principle; it involves the application of a *skill*. A man may be able to reason with principles such as *modus ponens* without knowing that those principles are truth preserving or in any other sense valid. Otherwise, only philosophers would be able to reason, and even they would have a great deal of difficulty.

A second difficulty with the objection is that it assumes that my thesis is that one can never know that certain principles of reasoning are truth preserving. But my position is that one must be to some extent rational if

one has propositional knowledge. Once one is rational one can learn more principles of rationality and can sharpen up the ones already in one's repertoire. This is in fact what happens in the learning of a discipline. When one learns a subject such as History one takes principles of reasoning which one already possesses and refine them. One also learns principles which were not previously part of our reasoning, such as "don't trust Canadian newspapers from the thirties on political topics". This principle (perhaps it is more aptly termed a "rule of thumb", but at any rate it could be employed as a principle of reasoning) would be learned through the learning of a number of historical facts about the politics of Canada at the time and the state of the newspaper industry in Canada at the time. My point was merely that not all principles of rationality can be learned in this way. Indeed, the learning of this principle pre-supposes that one is already rational.

The argument fails, third, in supposing that it is always knowledge from which one reasons. Of course, one does sometimes reason from knowledge. For example, Jack who knows that Toronto is the most populated city in Canada, reasons from that knowledge to the belief that Vancouver is not the most populated city in Canada. But

need one always reason from one's knowledge? It is apparent that we should be in grave trouble were it true that reasoning always begins from knowledge. We would be involved in an infinite regress. Knowledge, I have said, involves reasoning. So if reasoning involved knowledge in this way we would have the following sort of series:

Knowing that  $p$  involves reasoning that  $p$  from  $q$ . Reasoning that  $p$  from  $q$  involves knowing that  $q$ . Knowing that  $q$  involves reasoning that  $q$  from  $r$ . This, in turn, involves knowing that  $r$ . The series is vicious because it requires that an infinite number of propositions be known if one is known. And this would render knowledge impossible.

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This series can be avoided by recognising that reasoning does not always proceed from a proposition, and by recognising that when it does proceed from a proposition, that that proposition need not be known. The former I recognised above, in my account of Annis' argument. Justification need not be propositional: Reason or experience may provide a justification for a proposition. Similarly, one can reason from the experience of reasoning, as when one accepts, after examining a proof, that the propositional calculus is complete, or from experience, as when one leaps out of the way of a rolling boulder. (See Max Black's "Why Should I Be Rational?"; especially his discussion on "Basic Reason Using")

Nor need one know the propositions from which reasoning proceeds. First, one may reason from propositions which one knows to be false. This is what is known as "counter-factual reasoning". For example, a driver intoxicated with alcohol may be blamed not for what harm he actually caused but for what harm he may have caused had the policemen not arrested him. ("What if Smith had struck a pedestrian? Think of how unfortunate the

consequences may have been.") Second, one may reason from propositions which one believes one knows but which are actually false. For example, one may reason from the false proposition (which one believes to be true) that Montreal is the capital city of Quebec to the proposition that the most populated city in that province is its capital.

Third, one may reason from propositions which one neither believes nor disbelieves. Sometimes it is found helpful, in determining the truth value of a proposition  $p$  to reason as if it were true. If such reasoning leads us to propositions which one knows to be false, then one rejects  $p$ . This is sometimes called *modus tollens*

reasoning. A fourth possibility is that one might reason from propositions which are unknowable in one of three senses. First, there are contingent propositions which are unknowable. Bradley and Swartz offer the following example:

- (3.30) "On April 13, 1974, an extraterrestrial being, who has the ability, and always exercises it, to thwart our attempts to detect him, stood on the tower of the Empire State Building." <Bradley and Swartz, 1979, p. 167>

Clearly, it is possible to reason from this proposition, in two of the above ways. (We can neither know 3.30 to be true nor know it to be false.) Second, there are non-contingent propositions which are unknowable.

Certainly, it is not possible to know all the true propositions of arithmetic. (See Bradley and Swartz, p.173-4) Suppose that Goldbach's Conjecture (that every even number greater than two is the sum of two primes), is one of those propositions (as it just may be). It is possible to reason from that proposition. Hence, it is possible to reason from non-contingent unknowable propositions. Third, there may be propositions which are unknowable in the sense that they cannot be justified. For example, a proposition such as "automobiles don't grow out of the earth" which was mentioned by Wittgenstein <1969> in *On Certainty* may be a proposition which stands *beyond justification* as it were. One cannot justify such a proposition because anything which might be brought to bear in support of it is no more certain than it. For example, as Wittgenstein points out, the claim that one can justify the proposition by appeal to the senses can be countered with the claim that perhaps it is one's senses which ought to be assessed by checking whether or not they lead one to the acceptance of the above proposition. Some propositions cannot be justified because there is nothing more certain than them against which they can be justified. If so, then it is, strictly speaking, not possible to know them. Clearly, however, it is possible to

reason from such propositions. There may also be other ways in which reasoning can proceed from propositions which are not known, but clearly this suffices for our purposes.

#### (vi) Consequences

Knowledge and rationality are related in the following way. Rationality is a condition of the acquisition of knowledge. Only rational agents are in a position from which it is possible to acquire knowledge. It is through exercising one's rational abilities in certain ways that one acquires knowledge.

This ought not to be taken to suggest that one never becomes more rational through the acquisition of knowledge. At least sometimes knowledge may play a vital role in the formation of rational beliefs and desires, as well as in the commission of rational actions. As I mentioned in the preceeding section, learning a discipline involves learning new principles of reasoning and sharpening up those principles of reasoning already in one's repertoire. There is good sense in saying that such achievements contribute to one's rationality.

Hence Hirst must be wrong in his belief that it is

only through the acquisition of knowledge that one becomes rational. And so he must likewise be wrong to believe that the reason education is significant is that it plays so vital a role in the development of rationality.

Rationality is an achievement of a different sort than education. All educated people are, on that account, rational. But there are many amongst us to whom the epithet 'rational' could not reasonably be withheld, but to whom 'educated' obviously does not apply. Most people are in this category.

## CONCLUSION

## (i) How Hirst goes wrong

I have shown that Hirst's argument that the acquisition of an education is important because it is essential to the development of rationality is unsound. Hirst's argument relied on the premise that it is only through the acquisition of knowledge that one's rationality can be developed. We have seen that this premise is false, hence his argument is unsound.

I agree with Hirst that education involves the acquisition of knowledge in whatever disciplines are manifest, or at least in a great many of those disciplines. Roughly, it will involve knowledge in each of what Hirst has called the 'forms of knowledge', though I should dispute that there is knowledge in religion, and that the objects of knowledge in the arts are the actual works of art (Hirst believes that a work of art is a proposition, capable of being true or false). Of course, the concept of education is vague. It is vague in two senses. First, it possesses *linear vagueness*. It is not

clear how much knowledge one must possess in order to be educated. Second, the concept of education has *combinatorial vagueness*. (See William Alston's <1967> article "Vagueness".) That is to say, it is not clear which areas of knowledge or disciplines are of the greatest importance. Is science more important than the arts? Might two men, one who knows a great deal about the sciences but not much about history, and the other who knows a great deal about history but not much about the sciences, be *ceteris paribus*, equally well educated? Or will the one who knows more about the sciences be more well educated? But, roughly, Hirst's conception of education seems to us to be correct.

Not all thought involves or presupposes that one possesses knowledge, however, and it is this fact which prevents Hirst's argument from being successful. And especially, not all thought presupposes knowledge from the disciplines. Even were it true that thinking presupposes knowledge, it obviously is not true that thinking presupposes knowledge from the disciplines, i.e., educational knowledge. Much, if not most, of our thought is of a very ordinary, unsophisticated variety. And whatever else education involves, it at least involves sophisticated thinking.

In *The Logic of Education* Hirst and Peters (1970) make a distinction which is relevant here. Had Hirst borne that distinction in mind in his own work, then he would not have been lead to the conclusion that education is equivalent to the development of rationality. Hirst and Peters distinguish between the L.C.M. (Lowest Common Multiple) of personal development and the H.C.F. (Highest Common Factor) of personal development:

In brief, if we ask the question about the end-state of personal development, as distinct from particular modes of development, it might be possible to produce a formal account of both an H.C.F. and an L.C.M. of personal development. The latter consists in maintaining the basic structure of man as a rational animal; the former consists in developing these rational capacities to the full. (Hirst and Peters, 1970, p.56)

In Hirst's work these two aspects of personal development are conflated. In not distinguishing them Hirst was lead to think of education as the development of rationality. Accordingly, he came to believe that the acquisition of knowledge, which is an essential element in the acquisition of education, is necessary to the development of rationality. I believe myself to have shown him to be wrong.

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