ACCESS △

REPLY

Problems and decisions

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It is a pity that in the first part of his paper, "Ideology, Educational Change and Epistemological Holism" (Access, Vol 2 No.1, 1983, pp 1 - 21), J. C. Walker feels it necessary to cast doubts upon my scholarship and philosophical responsibility. If he succeeds in discrediting me with these few paragraphs, my support for some more important parts of his article will not be welcomed by him. Yet I do agree with much that he says in his more valuable second and third sections. If he finds this disturbing he will be glad to know that there remain some fundamental points in his central thesis that I do wish to take up.

I shall first try to save myself from being drummed out of the regiment of responsible scholars.

Walker begins by referring to my paper, "Marxism, Magic and Metalanguages" (Educational Philosophy and Theory, Vol 10, No.1 1978, pp 31 - 44), as a critique of marxism. He even refers to me as one of the first critics of marxism writing in *EPAT*. He complains that I never answered the subsequent paper by Archer and Stevens, which appeared in *EPAT* (Vol 11 No. 2, pp 55 - 73).

My 1978 paper which, presumably by accident, appeared next to another article by Warren which was critical of marxist doctrine, was not an attack on marxism. My purpose then was not primarily to attack anything in particular but to try to do something more constructive and useful. If anything does come under attack in my paper, it is some kinds of religion which I regard as nothing more than elaborations and illegitimate extensions of magic. I admit my slightly tongue-in-cheek choice of alliterative title may have obscured this for it appears that while some marxists have taken offence when they had no need to do so, others who should probably have reacted strongly, have missed the point too. Another possibility, which I suspect may be correct, is that the magicians do recognise their own irrationality and, reinforcing my main thrust against them, do not care if they are so.

The response from Stevens and Archer struck me as distinctly odd and altogether too defensive. Had they raised their visors they should have seen that I was not tilting particularly at them. I think, however, that if certain kinds of priests, rabbis, ayatollahs or other tribal witch doctors were to understand what I was, and still am, saying, they would consign me metaphorically, metaphysically and, if they thought they had the chance, materially to the flames. The careful reader of my paper will find there, I hope, support for important principles to which I believe most marxists at least claim to subscribe. I say, most marxists, because if Watt is correct, some people do appear to regard marxism as their religion and treat not only sceptics as heathens but cry heresy when one of their own number diverges from what they hold to be the true beliefs[1]. I shall resist the temptation to pursue that theme, and continue in my own defence. It may be clear why I did not make much reference to any particular magical or marxist incantations. I shall hardly do so now, either.

Within a few weeks of the Archer-Stevens paper appearing I wrote (as Walker now knows) a reply which was submitted to *EPAT*. It was not published and may never be. I do not question the judgment of the editors of *EPAT* or their advisers. To frame a reply to Stevens and Archer was very difficult. They took my argument to be something it never was. They confused the issues even worse

by attempting to deal simultaneously with articles by two different authors working independently. My reply was therefore largely a repetition, in somewhat plainer language, of the original main argument. To print all this again in the journal was probably, and perhaps rightly, thought unnecessary. The item. might have been rejected for several other reasons as well. Perhaps if it had been briefer it would have been printed. The most effective reply might have been that which appears now: read the marxism and magic paper again.

One critical point of scholarship that Stevens and Archer made which I did deal with elsewhere, concerned my interpretation of R. M. Hare's 'ways of life' thesis. I wrote a shorter paper which, under the title "Justifying a Way of Life", was read at the Philosophy of Education Society or Australasia's 1981 conference and was published subsequently in the resulting conference booklet, *Philosophical Issues in Education* (Ed. Crittenden & Cave, ISBN 09592897 04, not to be confused with Kleinig's book of the same title, which I have reviewed elsewhere.) In that article I developed, in a somewhat different way, the main themes which interest me and which were the real subject of the 1978 marxism and magic article.

Walker's further critical remarks, about my paper on radical defeatism, are also misdirected because he runs together what he mistook for an earlier attack on marxism in general, and my much narrower and more polemical criticisms of a particular book, Harris's *Education and Knowledge*[2]. In the opening paragraphs of my article I quoted a short passage from Stevens' PESA conference paper of 1976 (published in *EPAT* 8, 2, 1976 pp 29 - 41 under the title "Ideology and Schooling"). This summed up quite well, in a few sentences, the kind of argument from which Harris appears to have started. He made flattering acknowledgements to Stevens in his Preface although admitting that his conclusions might differ. I do not think I was unfair to Stevens here. His original paper, referred to by Harris later (Note 35 to his Chapter 3), quite impressed me when I first heard it read. I still think it contains some interesting ideas. Of course if my assault on some forms of magic is seen as an attack on the Althusserian position, one cause of confusion becomes clear. If some Althusserian feels like wearing a pointed hat, then on his own head let him put it.

I am sorry that Harris, in moving on from that position (if indeed that is where he started), ran into a blind alley of despair. The sentence of his that I evidently misquoted in a trivial way, not significantly changing its meaning, might have had some sort of restricted contextual limits within those of the book as a whole, that I did not grasp. It seemed and still seems entirely in tune with the rest of that work, especially the concluding chapters. It appeared in my article flanked by correctly quoted passages stating Harris's view that education creates a pernicious form of ignorance, that distortion and illusion have become the norm and education as provided by capitalist liberal democracies will not change from providing structured systematic distortions and that, where there are conflicting social interests and struggle, there Is no escape from ideology, not even for marxists. This still sounds like counsel of despair in our kind of community where there are and will apparently continue to be, conflicting interests and struggle. If there is no escape so long as there is struggle, why should we struggle? Should we not just give up and make what we can within the capitalist liberal system? The only reasonable alternative offered was to "engage in dialogical encounters", which is to say, we should talk to each other. No-one Is likely to disagree with that, but this was described as a return to the Socratic method. So we are to join the secret, numerical, idealistic-mystical brotherhood, as Socrates did, and put on pointed caps after all. On that sort of matter I do not want to change my stance. My criticisms of Harris' s book were written and sent away before the publication of the 1980 paper which Walker suggests has clarified or perhaps altered Harris's position. The book contained an uncomfortable mixture of what, in its author's own view, must surely be mutually contradictory ideologies and the final, thoroughly depressing conclusions were wrong and harmful. If he has changed his position, or if that never was his position, good.

I am grateful to Walker for his clarification, for clarification was needed, of the general Althusserian argument. Coming from someone with a far wider reading in marxist literature than I

have or am ever likely to acquire, it tends to confirm that this direction within marxism Is not really worth pursuing and does in the end lead to something akin to witchcraft.

Perhaps one trivial point raised by Walker should be dealt with, for it leads to something much more interesting, I think, than mere textual criticism. I used what Walker calls 'scare quotes' around the word radical in a good many places, not because I hope to scare anyone but, in a sense, to reassure them. I have occasionally said in conference, though I can't recall having written it before, that the trouble with "the modern generation of 'radicals'" is that they are not radical enough. They do not get to the roots and radical in the sense I use it is to do with getting to the roots. I hope that what I say here and what follows, will not be construed as an attack on anyone in particular or on any group. (One exception is mentioned in my closing paragraphs.) I am interested in certain kinds of argument and the conclusions that follow. I shall use some of Walker's latest article as my starting point, and shall refer to it occasionally, because it Is a way of illustrating the things I want to say. I shall not, on this occasion, refer to much else in the way of scriptures although many readers will recognise where some of my notions come from and I expect they will think I have misunderstood or misconstrued them. I am more interested in construction than exegesis. Professional philosophers are familiar with these matters but they do not seem to have been very much thought about yet, among people who are primarily concerned with education. Perhaps partly because of the clouds of idealism and the dust kicked up in school classrooms, we are still in the dark.

Walker writes of the "historical materialist theory of dialectic contradictions as a guide for action" and goes on "This theory like any other theory of course, may or may not be true." (Page 8.)

This statement implies a readiness to test theories. If we are totally certain that something is true we do not test it, for there is no point. We may be wrong but we do not know it. We stake our lives every moment on our certainties but to say that something is a theory is to say that it is uncertain. We may still have to bet on it but we know the odds are different. If we can, we lower the stakes. To say that a theory may or may not be true suggests that in principle at least there is some way of finding out which it is. I emphasise here, to avoid being misunderstood, that I cannot see any possibility of separating practice from theory. I am sure that any deliberate human activity, whatever it may be, goes on under the influence of some theoretical understanding. Whether the theory is sophisticated or not does not alter this although it usually does have practical consequences. To go into this at length would take us too far from the present argument but I think it Is a point with which materialists agree. As I tried to show in the 1981 paper referred to above[3], Stevens and Archer do seem to make an illegitimate separation here and this probably is one of the differences between them and Walker.

Rather late in his paper, as a small part of his defence of holism, Walker mentions the Duhem-Quine thesis (P 17 Note 68). This, which he seems here to accept, has far reaching consequences which must apply to all our thought about theories, including those of historical materialism. The question of principle is, in Reidel's words, can theories be refuted? The thesis is that we cannot falsify any theory whatever in anything more than a very limited, qualified sense. No theory stands alone but is always a member of a whole theoretical structure, a mutually supporting system. For instance, Galileo's heliocentric theory was tested with the aid of observations made with an optical telescope. All observation statements are fallible, either because someone makes a mistake or fudges the evidence or because the observations themselves are theory-dependent. Galileo's telescope was constructed as it was, and he interpreted his results as he did, because of the optical theories of his more general physical theoretical system which included such things as a rectilinear concept of space and consequential theories about how light travels from one medium to another such as air to glass to air to the human eye. These general physical theories themselves depend on other, fallible, observation statements and those in turn on other theories and so on and so on. Hence, while a theory may be discarded because it is found to conflict with associated parts of the theoretical structure, it may still be acceptable if these other theories themselves are discarded or modified in some appropriate manner. It may be very inconvenient to change the more general

theories in order to accommodate some recalcitrant, non-conforming theory and its associated observation statements. It may even take some sort of Kuhnian scientific revolution of thought, to accomplish this[4]. Inconvenient as it is, it can be done and has been done. Final and irrevocable falsification becomes an impossibility. (The argument sketched here is of course only the barest of outlines, and omits several important points which cannot be pursued here.)

Neither can we establish the final truth of a theory in any of the empirical sciences because all the evidence will never be in.

I am not quite sure that historical materialism is an empirical science. Popper has raised some doubts about that but it is against some of Popper's own work that the Duhem-Quine thesis has its most powerful force. Walker does describe the application of historical materialism as something at least very like scientific research so at least for the sake of this argument, let us accept that any test of historical materialist theory is itself to be a material, which is to say, an empirical test. The conclusion has to be that concepts like 'true' and 'false' cannot be applied, without at least some sort of qualification, to theories and historical materialism is a theory, or a holistic body of mutually supportive theories, or so we are assured. It can neither be falsified nor established as true. This is an uncomfortable position but we seem forced to take it. In ordinary life (whatever that is), we may frequently use terms like 'true' and 'false' loosely and get along pretty well without much confusion most of the time. There is a good deal more difficulty when we are trying seriously to assess something like a theory. Any solemn assertion such as: 'This theory is true (or false)' seems to assert that the uncertain is certain or vice versa.

We might hope to escape by setting up a special rigid definition of 'truth' when it is to be applied to theories. We could say, perhaps, that a theory is 'true' if it is logically coherent, if it is testable, if it has indeed been well tested and if it has always, so far, passed the tests. In short we might say a theory is true if it is compatible with all known data, for a theory can hardly be called a theory at all if it is not coherent.

Unfortunately this will not do. We should in principle find ourselves before long having to say that several logically coherent but contradictory theories could be simultaneously true. Yet it is a fundamental presupposition of our prevalent two-valued logic (which we use all the time although we know multi-valued logical systems are conceivable), that contradictory statements cannot all be true. If p is true, not-p must be false. Sometimes we may have only one theory in some area of importance to us. In practice this-leaves us little option. We either employ the theory we have and hope it works out, or apply no theory and hope for the best. I have mentioned above that practice always does rely on some sort of theory. Without any theory we are reduced to random, undirected thrashing about. Whether, after applying the theory, we still use our restricted term 'true' with respect to it, will depend on how the outcome of its application is interpreted. If the only theory we have apparently fails under such test, our rigidly defined notion of truth compels us to say, it is 'false', yet to abandon it would reduce us to undirected action. Even in the physical sciences, no theory has yet been found which is actually compatible with all the data known now, so by our own criterion we may end up saying all theories are false. We do not drive ourselves into that sort of linguistic corner. We prefer to abandon the rigid definition of truth. There are examples from physics, for instance, the wave and particle theories of light, which illustrate what actually goes on. Neither of these theories is true under the definition suggested, because neither does account for all known data. Yet neither can be falsified according to the Duhem-Quine thesis. Both are used by physicists, often both are used on different occasions by the same person, but neither is true and neither can be 'falsified'.

On the issue of principle, Quine has written that any number of alternative theories "can be at odds with each other, and yet compatible with all possible data even in the broadest sense. In a word, they can be logically incompatible and empirically equivalent. This is a point on which I (Quine) expect widespread agreement, if only because the observational criteria of theoretical terms are commonly so flexible and fragmentary."[5] Hence while in practice all theories are 'false', we

cannot say even in principle that any theory will someday be demonstrated as 'true' under our definition, because a logically incompatible theory might be constructed to account for the known data equally well. Even Lakatos' attempt to escape from this unpleasant position by way of the 'more progressive' theory, while hopeful, does not in fact show that alongside a most progressive theory, another equally progressive cannot be constructed if someone sets about it[6].

Walker says a good deal about problem solving with the aid of theories. A solution (not, perhaps the only possible one) is found by first making a correct theoretical analysis and deducing from that, possible solutions. "The best solution is one that solves the problem" (P. 9). I shall note only briefly that a solution that does not solve the problem is not a solution, and wonder only momentarily how a properly deduced solution coming from a correct theoretical explanation, can possibly fail.

What Walker relies on here, although not saying it in so many words, is a pragmatic notion of 'truth'. It is important to remember that the 'empirical compatibility' of a theory is often, if not quite always, established (or not) by applying it in some material way and observing the outcome. Whether this is done in a laboratory under some carefully controlled conditions or in the more complex, less controllable situations that crop up outside research programmes, makes no difference in principle and the nature of the problem is very much less objective and given than Walker claims. The laboratory problem is often seen as a problem generated by the theorist and the experiment is constructed as a pragmatic test of the theory. Without the theory, such a problem might not exist. Even when the matter is not just a research problem of that sort, but something seen as life-threatening by a whole group of persons, what they recognise the problem to be, depends very much on their theoretical conceptual structures.

To make all this a little more concrete, we may think of two human communities living a few score of kilometres apart or separated by a few centuries of years but anyway in similar physical climatic circumstances. What we term a severe drought begins. Some communities might not recognise this as a problem at all but might welcome the blue skies and hot weather. A dude ranch in Arizona might carry on with no significant change, or a nomadic tribe could simply move through in the normal way in search of pasture. But we may suppose that both our not-so-hypothetical communities conceive their very existence to be threatened by the dearth of rain. That is part of their general theoretical stance.

In one community it is theorised that the spirits which govern the skies are to be propitiated and the problem is formulated in terms of how best to propitiate them. After some deductive argument it is decided to devise and perform a rain dance and this is done. Rain does not fall. If the community survives long enough there is more argument and it is deduced that something was wrong with the rain dance. The dancers failed to do the right steps and the leader had had sexual intercourse the previous night. So another dance is performed with a tightening up of the rituals. If rain never falls the community dies or disperses. If rain does fall, the theory is held proven. The community may decide then to take the precaution of doing rain dances at regular intervals.

In the other community the problem is formulated differently. It is theorised that clouds are formed by the condensation of water vapour onto minute particles of dust, which form condensation nucleii in the atmosphere. Hence the problem becomes, how to introduce more condensation nucleii so that clouds will grow bigger and rain will fall from them. After deductive argument, rockets are prepared and set off to release dust into the clouds. If no rain falls, a tighter ritual is devised. The rockets must go off at exactly the correct altitude, the cloud selected for treatment must be just so and the air temperature exactly right. Eventually, either rain falls and the theory is accepted or it does not and the community breaks down. If the theory is held to be correct, rockets rise at regular intervals.

Observers belonging to a community with some statistical theories, can find no difference whatever in the actual, measured rainfall in either spatio-temporal region.

Neither community is compelled to discard the theory that was first devised. On the contrary, both may retain the fundamental basis they began with and add to it various kinds of elaborations, extensions, codicils and riders and points of exception until it does, to them, seem to lead to a correct formulation of the problem and thence to a solution. Rain will fall only if the priest is ritually cleansed or even totally celibate, rain will fall only if the rocket releases the dust at the dewpoint precisely and so on and so on.

Someone may come along who theorises that social relations in both these communities tend to develop, over a time, along lines very closely connected to the theoretical explanations prevalent. In one place, there are high priests who devise and modify the rituals and dancers who know the steps and can do them well. In the other there are meteorologists who know cloud physical theory and modify it, and craftsmen who build rockets. It might be suggested, as I think Karl Marx did suggest, that once some group within a community achieves social status and reward because of their relationship to the theories prevailing, then it is in their interests to maintain the theories in place and to reject others which appear to threaten their social position. Marx himself gains a good deal of status, in my eyes, because of his theoretical offerings here. That does not make his theory 'true' by any definition. That it is tenable, we have to allow, but then we have to allow that the rain dance and cloud seeding rituals stem also from tenable theories. People do in fact hold such theories and no theory in empirical science is falsifiable so why should they not be held? The relationship between rituals, social relations and tenable theories is much more complicated, it seems to me, than any such simple explanatory structure suggests.

The standard extension of the general argument goes on. If it becomes altogether obvious, even to the high priests of theory, that things are changing in such a way that the old practices no longer seem able to meet the situations now arising, it is still not necessary to discard the central or fundamental tenets of the theory. It is always possible to add some new section or sub-section to the whole to cover what are seen as special cases or to limit the effect, on the theoretical body as a whole, of the new data. The observational criteria, what is held to count as an observation and what the theoretical terms themselves are thought to mean, may also be changed. This is, in principle, an indefinitely extensible process. The theory can be, if necessary, trimmed of a few apparently superfluous pieces here and there, some of it once held to be central may even be forgotten as new bits are tacked on.

Empirical compatibility, which is to say, material problem solving power, is not of itself an adequate criterion for taking up or discarding a theory. So long as the problems are solved the theory itself may be retained. If it fails to solve problems then it can be modified until it does solve them, while still retaining untouched its most central assumptions and presuppositions. After a few thousand small changes it might no longer look much like the original theory and may even deserve a new name, but we are not concerned with labelling but with matters of' test and testability. We should be reminded of Von Neurath's boat which, though constantly leaking, can be kept afloat and even, ultimately, completely transformed by piecemeal patching and replacement while still remaining in one whole piece and at sea. The boat can be kept afloat as long as the crew choose to keep on working at it. They take it for granted that it is better to keep this vessel afloat than to thrash about in the water of irrationality. There might be other vessels within reach, but their crews are patching too. (Of this, more later.)

We should remember, in a discussion of pragmatic truth, that even when a theory is self-coherent, it may be inconsistent with some larger body of theory and yet it may still be extremely useful, and so 'true' in the pragmatic sense. For example, engineers who raise their heads momentarily from their calculators, understand very well that the Newtonian theory they are applying every day to help them in designing their bridges and aeroplanes and even to direct their shots at the moon, is inconsistent with the main body of modern physics as well as being incompatible with some well known and important material observations (at least, as these observations are usually interpreted these days under their own particular theoretical supervision).

If bridges fall down or aeroplanes fall to pieces in the air, no-one suggests for a moment that the well known but 'false' Newtonian theory should not have been used in designing them. On the contrary, such disasters are attributed to some neglect or oversight, a failure to apply the theory methodically. Newtonian mechanical theory is not even modified slightly when something of this sort goes wrong. It is most assuredly not claimed that, theoretically, the bridge fell because there is no luminiferous ether, or, empirically, that the aeroplane broke up because the stars occluded by the sun linger. a tiny moment too long on the Newtonian scene. The problem solving power of a theory is related directly neither to its general empirical compatibility, nor to its coherence with other theory or theories. Its particular problem solving power is related to its power to solve particular sorts of problems, as these are conceived and formulated by people. What counts as an acceptable solution is also a reflection of people's theoretical understanding. (Farmers have taken each other to court over cloud seeding. If this theoretically supported practice is held to work, pragmatically, then Smith can intercept and steal Brown's rain just as he might divert his riverine water supply. Such a conflict about practice can arise only if the theory which gave rise to it is accepted. If Brown scoffs at the theory, he will regard Smith's cloud seeding expenditures as wasted although recognising his neighbour's good fortune if he gets some rain. He will not sue him even out of spite or envy unless he expects the court to agree that Smith's intervention diverted the showers.)

A very serious sort of material problem arises when rival and mutually incompatible theories and the practices to which they give rise, come into direct conflict. In human history this has happened very often and in the case of the two communities described above it might occur if the sacred sites used for rain dances were required for rocket launching pads. In any case, silver iodide in the clouds infuriates the spirits. Within our own, very complex community now, we are faced with a material problem of choosing between alternative theories to guide our social practices and Walker describes marxism, or historical materialism, as one of at least two we have to choose from. In the closing sentence of his pa per, Walker remarks: "Within the framework of a ho list epistemology, one can then raise the question of whether, granted the similarities and differences, marxism or liberalism is a better theory for understanding society and promoting rational educational change."

This indicates that, from within a generally holistic and rational system of thought, there is some way of choosing between theories of society, some being in some way better and so me worse. This is perhaps not quite the same thing as choosing between true and false. It comes perilously close to the kind of value judgment Walker is inclined to discount. In a pragmatic sense we may indeed often find it easiest, in tack ling some problem, to apply a rather rough and ready Ockham 0 s razor to the various theories that might help us. Some sophisticated theories that might be logically coherent and capable of explaining nearly all known data in the relevant field, might still be too complex for people faced with grave emergencies. The process of adding riders and codicils and special exceptions, may have gone so far that the theory as a whole may have become almost unusable for this difficult situation. We might, quite reasonably, prefer a simple theory that actually get s us through the crisis, even though mature reflection and long-considered study of some other, more complicated theory might have shown us a range of alternative solutions.

It does not seem to me that Walker is saying, ab out either historical materialism or liberalism, that one should be preferred just because it is simpler than the other but even if tie does intend this, why should a simple theory which may get someone through a crisis, be considered in any way better when the solution offered by a simplistic approach may turn out in the somewhat longer run to be creative of far more, and far worse, problems than the one it was used to solve?

Historical materialism, in spite of Walker's reference to it as such, is not a theory any more than 'liberalism' is is a theory or, for that matter, physics. These are all much larger, more complicated, all-encompassing systems of argumentative discourse. They are not theories, they contain theories. Within historical materialism, a discursive system which, once upon a time, set out to do for human

society what physics set out to do for the entire inanimate universe, there are a whole series of conflicting rival theories of which the Althusserian and the more traditional Marxian may be two. I do not pretend to know how many others there may be, any more than I could give an account of all the conflicting theoretical issues within modern physics. That is not the point.

Walker lays a good deal of stress upon coherence, the basis of his defence of holism and of historical materialism within holistic epistemology. He may go on to show that his own particular theories are coherent and consistent with the principles of historical materialistic arguments in general. He cannot and should not try to show that historical materialism is itself a coherent whole. It obviously is not, as his own contribution to the arguments within it shows. If it were entirely coherent there would be no argument between him and other historical materialists.

An historical materialist may seek to demonstrate consistency of the general principles of historical materialism, as a whole system, with some even greater principles of rationality. Here there is another difficulty. Consistency with principles is not prescriptive, it is permissive. To say that any theory or body of theory is consistent with some more general principles is not at all to say that other, incompatible theories or bodies of theory are or must be inconsistent with the same great rules. It says nothing about them at all. At a childish level, this is obvious. A holiday is a holiday for you and me. It is perfectly consistent with the general principles of taking a holiday for you to go swimming and for me to go flying. We might very easily have a disagreement about which way of spending the holiday is more fun. It is even possible that one or both of us might be willing to try the other activity, for although we cannot simultaneously both fly and swim, there is nothing at all unreasonable or inconsistent if someone goes swimming in the morning and flying in the afternoon and, for that matter, bowling in the evening. On holidays we do more or less as we please, we are able to choose between a range of activities that are open to us. (I cannot, for instance, go snow ski-ing in South Australia because there is no snow nor sail a twelve metre yacht because I cannot afford it, so some activities are not feasible. I am lucky to have the range of choices I have, others have much less, but that, again, is not my main point here.) The activities of swimming and flying, bowling and ski-ing and sailing and so on, all have their own internal sorts of logical coherence and empirical tests. If you don't move your arms and legs properly, you may sink, if I don't keep my airspeed up, I may stall. That kind of thing is all the principles of consistency and coherence and empirical compatibility have to say about such activities. The question of which to choose remains. With sporting and gaming we may be content to let our personal tastes guide us. (Even here we may come into conflict with theories which see us as doing wrong. Some group of persons may be offended, let us say by your disturbing the fish and my upsetting those spirits on a holy day. Evidently we cannot even go on holiday without sometimes finding ourselves confronted by opposing theories and practices.)

We may think of the argumentative activities that go on within marxism or liberalism or whatever discursive theory - containing system we like to use as an example, as analogous to a group of people who have come together to assemble a vast picture puzzle on a large floor, from huge heaps of bits. Newcomers to the group may sometimes introduce new pieces no-one has seen before. Some of these may be newly made with scissors, card and paint. There is a great deal of argument, turning pieces over, shuffling them to and fro, and much discussion about what kind of picture is actually beginning to appear. It is not clear that there is only one picture being worked at. There might be several, all mixed up, but this cannot be ascertained until at least some substantial pieces have been made to hang together and, if there are any, some border sections linked up. A few portions have been made to cohere very well, but it is not yet known where these are supposed to go in the picture as a whole or where this entire picture, if it is itself part of some bigger scene, should fit into the general assemblage. Everyone puzzling agrees that there is a very important principle of coherence to be observed, but that is far from the only matter that concerns them.

It is supposed by the puzzlers that what they are constructing is in some way a vitally important picture of the world, but they do not have the box the puzzle came in with a guiding illustration on

the outside. In a way, they find themselves to be inside the box with the pieces, but the box, if there is one, is huge and they cannot see the enclosing sides. There might be none. There is nothing they can use as a basis for their work except the floor and the pieces and the principle that everything should fit together and make some sort of picture or perhaps a series of pictures, at the end. They may delude themselves that when the picture is complete, or even before that, when its general features begin to be apparent, there will be some way of checking to see if it is like something called the real world but the only way they have of knowing what the world is like is the pictures they make of it.

All this is bad enough, but when the puzzlers on this bit of floorspace, look around them, they see, just a little way off, other groups with partly assembled pictures and discursive arguments, shuffling and fitting away. Their pictures, in so far as they can be discerned, are different. Are those groups, or is this one, working at the wrong puzzle? The theoreticians may even wonder, when they find disturbing gaps in their own construction, if someone has stolen some of their pieces and incorporated them illegitimately into some other picture. They, too, might despatch eclectic pirates to try to fill in lacunae with captured fragments. They may not fit but might make good patches for the time being. Evidently all agree that the principles of coherent picture making apply but that is a rather empty principle when it is recognised that an indefinite number of different pictorial models of the world could be assembled in conformity with that rule. Even if one of the many possible pictures begins to look more complete than another, that is no guarantee that it is the one that should be worked at most. On the contrary, that may be the most nearly completed picture simply because more puzzlers have worked at it. Perversely, the one with the fewest devotees may be in some way or other, the most rewarding, for all anyone can tell. To tell such a thing would be to make a value judgment.

Ockham's hatchet is of no help, for there is no reason to suppose that a childish puzzle with only six large, boldly marked pieces, which goes together quickly and easily, will be in any sense more worth looking at than the subtler, much more complicated, possibly forever baffling, adult puzzles.

There is another sort of difficulty. The colour of the floor also matters. Not only is it differently coloured in different places, but it also seems to alter with time, perhaps just because of the great shuffling and fitting that goes on. However well the puzzle may be coming together, what it actually looks like as a picture, alters as the background colour shifts. The simplest example of this sort. of thing is the psychological teaser of a black silhouette on a white paper, which looks like a drawing of a vase, or two human profiles: facing one another. If such a drawing is placed on a black background, the vase disappears and the faces become so obvious that it is hard to believe they could be missed. Yet placed up against the white wall above the mantel, the faces vanish and the outline could be mistaken for a vase. The real world-picture maker's situation is worse than this, for the one thing that cannot be done, is to shift the partly assembled puzzle to another place and another time. It falls to pieces as it is moved, but even if carefully re-assembled with every piece in just the same relative position to the others, as before, in the new location it looks different. Progress is made, perhaps, new pieces are found which do go in neatly here and there, yet as this changes the image in one way, the image as a whole is always looking different against the shifting spatio-temporal floor. For instance, the historical materialist picture, so far as anything very' coherent has emerged, begins to look different against the background of late 20th century society, from the way it looked to the first marxian puzzlers a hundred years ago. Not only has a good deal of shuffling and re-fitting been done, with some pieces being thrown out altogether for the pirates to snatch, but the floor has changed tone, and it will change again.

It is not at all a criticism of marxists, nor of any other puzzling group, to say that they are engaged in 'a process of making a coherent picture or world model out of an unknown number of pieces, some of which are not even out of the heap yet and some of which may still be upside down. Every other discursive, argumentative, world-modelling system is faced with the same dilemma. The

pictures emerging do seem different and have their distinctive characters. They do not seem to fit together very well, at least not yet. All are being assembled on the same floor under the very broad roof of consistency with general principles, such as self-coherence and compatibility with known data. What is disgraceful, is if one group, or any other, judges from the picture they are making that their's is in some sense the only, or even the most worthwhile model of the world. Nobody has the right to claim any such thing. To say that all those working in this particular area, whatever kind of picture is being assembled, subscribe to the same general, rational principles, is to say no more than that their form of discourse is rationally permissible, like swimming or flying for fun are permissible under the general holiday principle. It says nothing whatever about this, or that, system's superiority or betterness compared with the other, incompatible, alternative systems.

The matter cannot be left where it is, for what we are talking about is not really a matter of picture puzzling. We may spend entire lifetimes trying to understand the world through theoretical systems and their associated practices. We do need a way of deciding not only which systems we should work at ourselves but also, and presumably this is what the present argument is about, which systems we should introduce to children so that they too, will help develop human systematic understanding. We are very lucky, as with holiday activities, to have some choice. Many people do not. To some extent everyone, as I have said elsewhere, is born into an ongoing, problem-solving, systemic way of living and some may never be able to escape even intellectually from the grind, to realise that there could be and are alternatives[7]. Where there seems to be some choice there is a responsibility to try to work out at least in principle, some rational ways of making such choices. Then we can not only decide for ourselves what we should spend our lives working at, but also have some justification for introducing children to the various forms of world-modelling that we find to be both rational and valuable. Unless we can work out some way of making choices of this sort, then we might indeed have to accept defeat and there will then be no rational way of making educational changes or any other sort of changes.

The question of choice between alternative systems of thought, is a truly radical question. Should we decide it by tossing a coin? I doubt if that is how Walker chose historical materialism. Yet this is a material problem just as much as any other and it could be that there is no reason to prefer marxism to magic, or marxism to liberalism, or anyism to anyotherism. If, as Walker says, it really doesn't matter which we do, then the toss of a coin may decide the issue. But even if we toss a coin, the implication is that before doing that we have already decided that the choice does not matter. We have evidently applied some general criteria about what matters already and reached a decision by some process of reasoned argument. If not by such argumentative process, then could we have tossed a coin to decide what mattered? Why should anyone choose that way of deciding such a thing? This sort of notion leads to a well known infinite regression. I can never toss the first coin because to do so I should have to toss a coin before I could decide to toss one. Even if I got to tossing the coin, by some thoughtless twitching of my hand, I should still have to decide whether to follow its guidance. All this coin tossing would take infinite time and one could never reach a decision that way.

We are not content with the systems we found functioning all around us when we were born. It is evident they do not function very well, that being their nature as incompleted systems of argumentative practice. We cannot rationally decide anything by coin tossing when we have decided that it does matter. To ask which of many great, alternative, world-describing systems we should choose to work at and teach, does not seem like a ridiculous question. Walker asks it too, or something very like it, in his closing words quoted above. To arrive at rational answers to such questions, requires discursive arguments, leading to conclusions. Such arguments have to be constructed and concluded outside the general, floor-based activity of puzzling and problem solving. We seem to have no pieces to assemble that do not belong to the numerous puzzles on the floor.

We have taken an important intellectual step away, so to speak, from the puzzle picture or pictures that preoccupied us hitherto and to which we may still be required to contribute, into the realms between the systems. We are trying now to examine all the theoretical discourses as nascent world-models, and decide which of them is worth working at. The various systemic arguments and discourses and assemblies of pieces, all under the general consistency, coherence and compatibility principles, are regarded now as objects for comparison and evaluation. They are object systems, their arguments go on in object languages.

If we break away from one group, the one we are used to, and simply rush to another which seems to have made more progress, or has a prettier picture, or whose members are the most vociferous and energetic evangelists, we shall in principle be no better off, for we shall not have answered any radical question. We shall merely find ourselves working at different sorts of theories with no better reason than before.

We could, maybe, find a clear space somewhere, grab a heap of bits more or less at random, or steal them from other theoretical pictures, and start assembling our own distinctive and individualistic model. It might even turn out to attract others. We might become known, to those who join us, as the founding genius of a new theoretical system. Yet still this is no answer to the question as to which system is preferable. If we are not joined by other puzzlers, we shall probably be ignored and eventually forgotten, or termed mad. Yet surely the mere matter of how many persons happen to be working in some theoretical space is not a satisfactory means of deciding the radical question.

It would be tempting to say that the job of the philosopher is exactly to make this sort of decision, and I think some philosophers, especially those of a more ancient time, did see this as their role. More recently, very few analytical philosophers have dared to attempt it. They generally recognise that they are operating in a way that does not actually make any particular contribution to assembling any of the object systemic puzzles. Rather, they wander round in the spaces between the groups, trying to work out whether or not there are a number of different pictures or only one which is being assembled piecemeal. By looking at what the puzzlers are doing they expose some general principles about how arguments may be correctly joined up to make deductions, how evidence may support or tend to spoil inductive generalities, and so on. They may discover that in some places people are busily painting over assemblies of puzzle pieces to create, not models of the world but fantasies. These, whatever their creators intend, may sometimes suggest new ways of looking at old visions or entirely new possibilities for theoretical systems and world models. They cannot be dismissed. Some other persons seem to be assembling nothing representational at all, but merely selecting pieces that make up into interesting shapes. There are some working away assiduously at totally white logical puzzles where all that can be seen is the wriggly lines where the pieces fit together, but no picture of the world emerges. Even these seem important, for they show us what a proper fit is like, what a hard border looks like if one is ever to be found, and sometimes how a piece of a world view may be turned round yet still slot into place.

Having stepped out of any and all object systems, there do remain systematic things to say and do. Seen now as an adviser and critic the philosopher may analyse the various pictures and try to make clear how they differ, if they do, where they overlap or do not, how one picture might give clues to the assembly of another, and so on. The difficulty here is that while such a philosopher's words may be listened to with greater or less attention by the puzzlers, his own form of discourse and argument has apparently no more authority to make choices or to suggest ways in which choices might be made, than any other system. The analytic philosopher has to admit that all the object systems seem capable of being made coherent even though none so far is fully so. None is yet altogether empirically compatible, but is perhaps capable of being made so until some new data comes in.

It is still pertinent to ask whether all object systems are indeed as they claim to be, consistent with high principles of rationality. Even here, if any are found not to be so, they could presumably

be made so providing those operating within them are prepared to consider such things and make the fairly drastic changes to their outlook that such changes would probably require. There is evidence that some groups of theorists are not prepared to make such radical adjustments to their way of looking at the world. Yet still it looks as if there may be a number of different puzzling groups all equally worth joining or none worth joining at all.

The radical question, which or which several of the rational and possibly rational systems, is worth pursuing, is still askable. It makes sense. It is evidently not a mathematical question arising as a problem in that sort of discourse. Nor is it a problem awaiting solution by the application of some theory of physical science. Any argument which may lead to an answer will have to be logically cohesive but that does not make the problem merely a problem within logic. Mathematicians, physicists and logicians may ask such a question but not as questions within their own specialised spheres of discourse. Rather, they demonstrate by their devotion to those kinds of activities that for them the radical question has been answered. If not, then perhaps they have never asked it. They might have been placed by circumstances of birth or accident, within their own peculiar systemic pursuits. Maybe some sort of fateful coin was tossed on their behalf by someone else.

Nor is such a question a marxist question askable and answerable from within marxism. Again, marxists may ask it and those who remain still committed to their special area of discourse, have presumably worked out a rational answer which satisfies them. They cannot cite marxist arguments and theories in defence of such a decision for that would amount to a transcendental deduction and simply cannot be done without inescapable paradox.

The question, although it probably is recognisable as philosophical, does not seem to be merely analytic. It is hard to see how it could have an analytic answer.

There are evidently some non-analytic questions which do not arise from within any object system, but rather appear outside, beyond any object system in a second order or metalanguage. These questions also have to be answered in the metalanguage. For any answer to be acceptable it must, like all other acceptable answers to questions, be constructed under the general, roof-like principles of consistency and coherence, which is not really to say much more than that the arguments and statements in the metalanguage have to be metasystemic, but not object systemic.

Since the material problem facing us is one of choice between argumentative systems, which do seem to differ considerably from one another and sometimes seem to be logically incompatible, the metasystem must in some sense contain them all and the metalanguage must in the same sense, comprehend all the vocabularies of the object systems. Without such containment and comprehension, the metasystemic assessment of the object systems would be impossible. Each puzzling group, with its heaped up dictionaries of word pieces and its logically coherent but still incomplete assemblies of sentences and statements, would seem from the outside like nothing more than a humming tribe of ants engaged in incomprehensible activity. Yet while in that sense the metalanguage must contain the object languages, the argument to be developed in answer to the radical question, cannot itself contain object-systemic pieces and assemblies. It is the worth of those very pieces and assemblies that it is now required to evaluate.

This leads to what I have, earlier, referred to as linguistic impoverishment of the metalanguage. There are enormous heaps of terms and types of argument that we cannot use in the metalanguage even though we may recognise that they are perfectly legitimate in their object systemic places. The vocabulary we are permitted to employ, for this kind of argument, is therefore quite poor. The puzzle picture analogy has already been overworked and now it may have become quite misleading, for what we are now evidently attempting, in that sense, is to assemble some sort of world view of world views, without having any pieces to shuffle and turn round and fit, and without any floor space to work on. If the analogy has any remaining use, we must suppose ourselves to be trying to move and shuffle entire object systems themselves as pieces in our second order puzzle, trying to fit them together somehow even though we have discovered already that some of them are mutually incompatible and none of them as yet even hangs together very well as a movable whole. There

seems to be no way of reconciling some of them with others, yet under broad rational principles they are all acceptable or capable of being made so if we do work at them hard enough.

There is nothing to stop an impoverished language expanding, by the addition of new terms or the redefinition of old ones. Hence the metalanguage may grow. One way in which it can grow is by employing metaphors. A term may be extracted from one of the object languages, and find a use in the metalanguage. When this happens, the term must mean something different in its new usage, for that is what metaphors are, words used in ways having sense beyond their more limited or technical sense. (Metaphors may also move back from meta to object language, coming to have technical usages where once they were more general. The point is worthy of more development on some other occasion.)

Yet such expansion and development of the metalanguage does not conceal its essential poverty, for it can make no statements about the world. Or, more precisely, it can make statements about the world only by making pronouncements about the high principles which must govern object systems. It is their job to make first-order world-statements. The metalanguage makes statements about the various kinds of object systems that can be perceived from the metasystem and can be comprehended rationally. For instance, the metalanguage can require of all object languages, that they strive to be coherent and systematic. If it can be demonstrated that some object language is not strictly serving these principles, the metalanguage can require corrections.

This suggests one way in which the metasystem can help decide the radical question. Within any object system there are conflicting theories and contradictory statements but these are a necessary part of the world-modelling process. It may therefore seem to the theoreticians working within an argumentative systemic discourse that the disagreements within their object system are such as to destroy its coherence entirely. One section or other within the object system group, may call down from above, the high principles of reason. They will probably declare that since they are consistent and their bit of the puzzle hangs together, their immediate systemic rivals must be either inconsistent or incoherent or both. Such a claim cannot be considered fairly from within any object system. Mutually incompatible, but still coherent statements, are permissible in principle. Whether or not any statement, or theory, is to be accepted and relied on, is not a matter that can be determined by appeals of this sort. Resolution can be achieved only by applying to the matter whatever kind of testing method is accepted by the object systematic puzzling group within which the contradiction arises. Presumably it is because they have chosen the system they are working at because of its methods of testing (inter alia) that they are working at it in the first place. If there is no agreement here, then that is a very good reason for not remaining within, or never joining at all, that particular argument. It seems from this that the first thing of importance to any theory building system is to determine what kind of tests will be applied. Those who join in the argument must agree to accept the results. Otherwise no world model of any kind is likely to emerge from their activity. What shall be done after a theory has been tested still remains an open question but the very act of testing, as suggested at the beginning of the present paper, implies that the theories developed at this level are never to be regarded as true beyond doubt, even by their most ardent protagonists. Commitment to them, and to the object system which produces them, is always and necessarily conditional. Not only might a particular theory be rejected but an entire object system containing such theories might be avoided without any rational error.

On the other hand, if the metasystemic consideration finds that the object system does not subscribe to the overarching principles of rationality, and cannot in any way, even after extensive rearrangements and revision of central presuppositions, be brought under that roof, then it has the authority to pronounce on that system and should do so.

Under the general and non-prescriptive principles of rationality several other vitally important principles can be discerned. These yield some limited, though still quite broad, guidance as to the acceptability or otherwise of the various rival contenders for admission to the curriculum of permitted activities.

The first of these is the principle of deciding important issues by rational argument, which principle must pervade thoroughly every discussion, whether it is theoretical or about how some theory might be applied to a problem, or even about something relatively trivial like how to spend a holiday. From this principle, it immediately appears that no-one can be unconditionally excluded from an argument. Access to any discussion must be open to all, whether the discussion is about holidays or about the nature of the universe. To subscribe to the rational principles of argument entails this. To decide to exclude someone from any particular argument, requires a general rational discussion to take place before the exclusion. To ignore the needs, requests, values and potential contributions of anyone to argument, especially when it is their own personal development of theoretical understanding that is to be considered, is irrational. To do this would be to exclude them *a priori* without attending to the reasons for not so excluding them. It is probably fair enough to say that some people, especially very young infants, cannot participate in rational argument about things that, we commonly imagine, are far above their heads and incomprehensible to them. That does not excuse us from endeavouring to bring them into such arguments and seeking their contributions. On the contrary, it is itself a reason for trying to draw them into language and modes of understanding for to keep them out is an action that requires argumentative support. They cannot join that theoretical argument without being drawn into arguments in general. Much that goes on under the general heading of education may be seen in this light. Access to education must rationally be as open and free to all as far as it is possible to make it so, under whatever systematic rules we construct our world models. If our object systematic theories lead us to a different conclusion, such as a racist, sexist or class-based exclusion of persons from education, then these theories are incompatible with reason, however well they may seem to fit into their immediate systemic theoretical frameworks.

Another general principle of the greatest importance is the constructive rule. All the puzzlers are striving to make something. Their work is creative and not merely appreciative or intriguing (though it is often both those as well). It is acceptable under this general rule that sometimes existing pieces of the puzzle, arguments and theories, insights and visions, may have to be broken up and re-arranged or altered to fit in with newly constructed sections of picture. Pieces do have to be shuffled, turned over, and re-fitted or sometimes passed over to another group. Such changes, which may be quite far reaching, are frequently necessary to permit developments to flourish. It may be the case sometimes that a particular section of the general puzzle is going together so badly and becoming such a senseless scramble of disconnected bits, that it might be better to abandon it, distribute the pieces and disband the group who have been working at it. Such changes may sometimes deserve the title 'revolutionary' within their own discursive systems. But all this is very different from a general destructive movement which sets out, perhaps from within one agitated group of theorists, to destroy all other rationally acceptable theoretical systems and to impose upon all others, one particular world view as if this particular object system contained some kind of revealed and perfect truth. It is a disaster if, as sometimes happens, some theorising group becomes so excited and carried away by what their own world view shows them, that they are driven to destroy not only all the alternative views rival to their own but also the human beings associated with these other models who still have something rationally permissible and constructive to offer. This kind of thing leads to religious and political persecutions, holocausts and armageddon. A recent example would be the activities of the national socialists in Germany and similar groups still surviving in other regions under various names. Like any other object system, national socialism contained, or contains, theories which could probably be made more or less coherent and compatible with data. Data was, and could be again, collected and problems formulated, and final solutions discovered, all within the framework of such an object system. It is only when it is recognised that national socialism sets out to destroy all other world views, and to bring down the roof of reason altogether, that the total unacceptability of such an object system is apparent. It often seems that some religious systems also adopt a strictly circumscribed sort of internal but not generalised obedience to rationality and this has led, and still leads, to vicious persecution and slaughter. Even some of our own neighbours, while no longer, one hopes, permitted to cast heretics

into the flames or convert heathens by force, still seem to adopt techniques of brainwashing and more or less subtle indoctrination. Such irrationalities must be resisted. Presumably no historical materialist would admit to any similar sort of position, but there are times when members of this highly diverse argumentative group of theorists do seem to be suggesting violence as a solution to the problems as they have formulated them.

Much more along generally similar lines could be said, but to try to say it all here would make an already long paper, inordinately longer. In the present context, historical materialism and liberalism have been offered to us as rival systems of discourse, between which we have to choose. They do seem to be incompatible in some respects with one another because, quite often, they would lead us to do quite different things when faced with some material situation requiring action. Neither system is very coherent in detail. Neither is very successful in solving problems even when the problems are formulated by the system. (They might not look like problems at all from the other viewpoint.) From a metasystemic stance, the rivalry between the two has itself become a problem more than merely academic. There are, it seems, people who are prepared to run wildly through the constructive groups to destroy them all, for no better reason than that they have created, for themselves, in their own small space, a particularly ugly sort of picture.

The problem of how to make choices between systems of thought and argument remains only partly answered. This is not, however, a matter for despair. What has become clearer from all the foregoing is that there is nothing in itself irrational in employing the theories and engaging in the arguments of any and all the systematic groups when it suits us to do so. We have to decide which of the theoretical systems on this or that occasion, offers us the most valuable insights. That is a value judgment. It is true that we cannot swim and fly at the same time, but we are not amazed or baffled when someone does such things successively and does other things too. We are content to let the decision on particular occasions, be a matter of personal value judgment, providing there is no over-riding theoretical issue, such as whether it is a holiday. There is no reason whatever why someone should not, rationally, seek to understand and even contribute to the world view being developed by historical materialists, and liberals, and mathematicians and physicists and (if there are any fully rational) religious groups and any other object systemic group of theorists whatever. The commitment should never be final and is never irrevocable in principle. When rival theoretical systems suggest wholly incompatible solutions, the over-riding principle of reason must prevail. If it does not, then fighting will probably break out and that is the end of rationality. However severe the problem, it cannot be solved that way. There may well be some altogether insoluble problems that no amount of rational theorising and deduction can solve. There is nothing irrational in supposing that.

The aim is to construct and understand a general human view of the universe and the human place in it. We know of no other ways of construction other than under the rational principles of coherence, consistency and test. The fundamental value judgment which we have made, is to engage in this process. We value rational construction. To reject it is certainly possible but such rejection would necessarily take us out of reason altogether. Some humans are beyond reason but that should not be the case with marxists or liberals. These are apparently constructive groups. We may learn from both. We may perhaps contribute to both. We do not have to commit ourselves once for all to either but we do have to construct something if we are to comprehend anything.

Notes

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