Critical Futures Study and Curriculum Renewal: Implications for Secondary Curricula in England and Wales

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Dedication

This work is dedicated to my sons
Rohan James Slaughter

and

Lorien Mark Slaughter

Abstract

A critical review of the secondary curriculum in England and Wales suggests that its inspiration and rationale derive largely from earlier historical periods. Broadly speaking, it is oriented toward the past, inward looking and dissociated from dynamic processes of change in the wider world. It therefore provides inadequate preparation for future living.

Futures thinking has not been successfully applied to curriculum problems in England and Wales. However, these necessarily incorporate assumptions about 'the future', and the notion of pedagogy itself may not be intelligible without explicit reference to the latter. Thus futures perspectives have many implications for education. They may be utilised to re-think curriculum purposes and to open out an area of discourse from which new possibilities for curriculum renewal may be derived.

The futures field is an under-utilised educational resource. But certain deficiencies indicate a need for a revised perspective which draws on critical traditions of enquiry. It is suggested that critical futures studies can assist in the resolution, or reconceptualisation, of major curriculum problems. Some implications of this view are set out in a discussion of future-focused aims and embodiments, innovation problems and potentials.

Futures thinking is a necessary component of curriculum renewal. It suggests approaches that are future-responsive and transformational in outlook. These permit schools to overcome temporal lags and seek a more positive, interventionist, cultural role.

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Section One: A Critical Review of the Secondary Curriculum in England and Wales

A realistic discussion of what is taught in schools needs to start from where we are, not where we might or ought to be.

- Schools Council, The Practical Curriculum, 1981

Institutions … carry with them bodies of theory which constitute ways of looking at the world, and ideologies that govern stance and action.

- Donald Schon, Beyond the Stable State, 1971.

Education is one of the core institutions charged with the transmission of values, meaning and the understanding of change in human society. Its largest deficiencies have been in this area, where it has dealt with the symbolic and value content of our culture almost entirely in terms of the past.

- John McHale, The Future of the Future, 1969.

1.1 The Curriculum Under Pressure

1.1.1 Educational Theory and Curriculum Definitions

A central feature of the curriculum field is the divergence between common sense views of the curriculum understood simply as 'content', and the wide range of interpretations offered by teachers themselves and curriculum theorists. This reflects both the inherent complexity of the field and processes of professionalisation within the research and teaching communities. Indeed, curriculum studies may be characterised as a conceptual tangle of unanswered questions, ideological disputes, competing recommendations and divergent frameworks of explanation and purpose. It is sometimes lamented that this lack of coherence, and the absence of any widely accepted theory of curriculum, poses significant problems for research, administration, innovation, teacher preparation and the many-sided task of teaching itself. [1]

Yet to see these difficulties in a wholly negative way would be to overlook their fundamental significance. To put it as briefly as possible: since the school curriculum is an integral part of social and cultural reproduction and change, any consideration of what is to be taught and why cannot but reflect the complexity of the processes involved and the theories that have been advanced to explain them. Thus the loose structure of the field may be seen less as a consequence of internally generated controversies than of substantive problems of analysis, understanding and interpretation that arise in the wider world. These underlie and interpenetrate teaching programs and curriculum research. Hence, it seems unrealistic to expect the curriculum field ever to exhibit the same degree of coherence or 'tidiness' which may be sought in other fields.[2] It may be more useful to think of it as a kind of forum, or extended 'conversation' which is grounded in a body of practice, but which necessarily deals with problems and concepts that are uncertain or problematic.

T.W. Moore draws a distinction between scientific theories that attempt to explain what happens in the world and practical theories that attempt to provide prescriptive or recommendatory guides to action. In his view, educational theorising falls generally into the latter category because it begins from a priori assumptions supported by arguments (as opposed to hypotheses tested by experiment). In fact, this distinction breaks down because 'scientific' theories contain non-rational elements, and 'practical' theories may utilise, or seek to utilise, 'scientific' approaches to experimentation.[3] The distinction, however, is not without value because it suggests that practical theories are based on grounds that are inherently more value-laden and subject to dispute. Thus, as Moore points out, educational theories are based upon assumptions about:

(a) desirable ends (for example, the roles that individuals are to play in society, and the desired form of that society);

(b) the nature of those to be educated (their supposed innate characteristics and qualities); and

(c) the nature of knowledge, and the methods deemed appropriate to transmit it.[4]

Clearly, a wide range of views may be linked with each of the above, and thus distinctive educational theories and approaches to the curriculum may be derived. Thus a classical humanist position emphasises cultural achievements and values of the past and the need to socialise individuals into an acceptance of elements of 'high culture' via well defined social structures and bodies of knowledge. By contrast, a reconstructionist position sees the past and future as problematic. It encourages reflexive debate about the nature of society and culture, has an optimistic view of human capacities and regards knowledge as provisional and open to re-interpretation.[5] The adoption of any such view will have subsequent implications for educational practice and the type of curriculum considered desirable. Hence the curriculum field has become a major focus for the discussion and testing of different educational theories and ideologies.

As Moore makes clear, educational theories must be internally coherent and defensible. Empirical assertions may be tested by reference to empirical facts, and value judgements are open to philosophical argument.[6] They must also, of course, be practicable, that is, be capable of being utilised by teachers facing practical problems in classrooms. Beyond this there should also be a broad congruence between theory, practice and the 'real' world. The writer articulates this concern in the following way. He suggests that "if practical recommendations to teachers are to be acceptable they must be grounded in <u>a correct understanding of what the world is like</u>".[7] (My emphasis). This raises a key issue.

Since the writer does not explain what he means by 'correct', a crucial point is overlooked. It relates to a central theme of this study, and may be re-stated as a question. Given the range of views possible about education, competing world pictures, a pluralistic culture and more information than any individual can assimilate, how can teachers and curriculum specialists ensure that their understanding of the world provides an adequate basis for practical action? A major purpose of the dissertation is to try to help resolve this question. While it is conceded that language, culture, tradition and theory mediate understanding and action, it is suggested below that there are important features of the contemporary world that educational theory and curriculum practice do not yet consider in sufficient depth. The consequences of these omissions are far-reaching for any curriculum or theory thereof.

This thesis does not offer a full theory of education or curriculum. It offers a perspective drawn largely from futures research which can help to identify 'gaps' in educational thinking, and perhaps illuminate curriculum issues in a new and constructive way. Concepts and methodologies from the future field have not been traditionally associated with education, but they have much to offer it because they address problems and issues in the 'real world' which require considered educational responses. The intention is not to argue for one existing educational theory against another or present a specific curriculum design. Rather, it is to explore the educational potential of the futures field and to develop a rationale for curriculum renewal that explicitly links educational problems and processes with macro issues in the wider world. First, however, we need to develop a working notion of 'curriculum'.

Numerous attempts have been made to define the curriculum, but given the breadth and diversity of the field, it is not surprising that none is entirely satisfactory. Nevertheless, a working definition of curriculum is required to establish a focus for later discussion. Implicit in any attempts at definition are evaluations of what constitute the major concerns of the field. Thus Stenhouse emphasises the open-ended, interactive, character of curriculum negotiation. His view of curriculum entails "an attempt to communicate the essential principles and features of an educational proposal in such a form that it is open to critical scrutiny and capable of effective translation into practice".[8] This covers a lot of ground but is pitched at such a high level of generality that it fails to capture the multi-dimensional nature of curriculum in an institutional setting. Jenkins and Shipman are a little more explicit about this, and they offer:

> the formulation and implementation of an educational proposal, to be taught and learned within a school or other institution and for which that institution accepts responsibility at three levels, its rationale, its actual implementation and its effects.

Here curriculum is explicitly related to theory, practice and evaluation. The reference to rationale links curriculum activities to the wider issues or value and purpose noted above. The reference to implementation acknowledges the practical problems that arise in specific contexts. Finally, thinking about effects or outcomes leads to a consideration of how one may attempt to assess the success or failure of educational activities in order to improve their effectiveness in the future.

Again, one may adopt a more concise notion of curriculum such as "all the learning experiences offered to pupils under the aegis of the school."[10] Here it is possible to recognise the complexity of educational processes without attempting to specify these in detail. The existence of the 'hidden curriculum' (that is, all the implicit messages and influences that are conveyed by institutional structures, teaching styles, evaluation techniques and so on) is recognised, and the focus is upon the crucial transactions that fall under the heading of 'learning experiences'.

These three examples illustrate how elusive the concept of curriculum may be. But together they provide a fairly coherent summary of the kind of problems with which curriculum theory and development are concerned. We may think of the curriculum then as a complex process of negotiation, a slowly changing body of practice embracing content, style, theory and technique, an elaborate sequence of learning transactions, all of which most commonly centre upon institutions designed to initiate individuals into a given culture. It may be noted that among the implicit assumptions in this attempt at definition are that curriculum practice changes slowly, and that the major functions of schooling concern cultural reproduction rather than cultural development and change. These are discussed further below.

One element remains to be added. Becher and Maclure remind us that any notion of curriculum must assert "two necessary intentions". The first is that "the curriculum embodies rational intentions". The second suggests that "there are….aspects of

curriculum which are intended to be shared, and about which collective decisions have to be taken".[11] In this way they introduce the idea of the public curriculum. This focuses attention upon the essentially political matter of how a society establishes its demands upon an educational system, and how, by whom, and to what degree these demands are accommodated. These are important questions. If societal demands are unrealistic, incoherent, even mutually incompatible, or if the mechanisms for relaying these demands to decision-making points in the system are in any way deficient, then the problem of achieving coordinated educational responses are greatly exacerbated. Thus before we can undertake a critical review of the secondary curriculum we must look briefly at the system of control that has evolved in England and Wales to mediate between the schools' and wider societal demands.

1.1.2 Who Controls the Curriculum?

There are essentially four levels of control in England and Wales (ie central government, the Local Education Authorities, or LEAs, schools and individual teachers) as well as a considerable number of interest groups such as professional organisations, employers, parents, examining bodies and institutions of higher and further education. Each has its view of the system and its own methods of attempting to exert some influence upon this.

The notional head of the educational system is the Secretary of State for Education, backed by the civil servants of the Department of Education and Science (DES). The term 'notional' is used because, in fact, the power of the Secretary of State to intervene directly in curriculum matters is minimal. As Becher and Maclure state "the 1944 Education Act gave the Secretary of State a residual responsibility with a strictly limited discretion to carry it out".[1] (My emphasis). Indeed, until the 1960s, successive ministers delegated responsibility for the curriculum freely to the other three levels. Partly this was a consequence of the postwar consensual view regarding expansion, growth, and optimism about what education could be expected to achieve in terms of economic and social development. Another factor was the widespread belief that the best way to meet pupils' needs and encourage high standards was to give the schools maximum freedom to make their own decisions. This was a period when secondary selection attracted little sustained criticism, and before rising expectations helped stimulate new demands (for example, that schools should attempt to promote 'social equality').

While central government exercised a measure of overall control via codes of practice, the rate support grant, the school building program and related legislation, primary responsibility for the curriculum was, in theory, vested in LEAs and the governors and managers of voluntary schools. In practice however, the climate of consensus, coupled with a growing tendency on the part of schools to assert their own 'independence' and the 'autonomy' of their teachers, meant that the former played relatively minor roles in the day-to-day organisation and running of schools. Thus major responsibility for the curriculum appeared to devolve upon teachers and heads. But while notions of 'independence' and 'autonomy' were to remain prominent in the rhetoric of the profession, they were vitiated from the outset by the system of external control represented by examinations. As Lawton notes, "in effect, all secondary schools worked

with a core curriculum which was established by the regulations but implemented by the structure of a group examination", that is, the School Certificate.[2]

Apart from the DES itself, the major body supporting the Secretary of State is Her Majesty's Inspectorate (HMI). Initially this organisation had been set up "to oversee and evaluate the spending of public money by the teacher-training institutions and schools which received grants from the state".[3] In time, however, the inspectorate concentrated more on advisory functions and in more recent years produced a series of studies, reports and discussion documents that attempted to focus debate on issues it considered important. In Becher and Maclure's view though, the role of HMI has gone beyond the advisory function by intervening in the curricular arrangements of the teacher-training colleges and increasingly playing a role which they suggest has been "central to the development of a more interventionist DES".[4]

Two further instruments available to the Secretary of State are commissions of enquiry, such as the Warwick Report and the now-defunct Central Advisory Councils (one each for England and Wales). The fact that the former have thrived while the latter have, since 1968, been deliberately kept in abeyance, is significant. Commissions of enquiry are typically staffed by eminent people from the so-called 'educational establishment' who, under the direction of the Secretary of State, commission research, gather opinion and consult with relevant experts. The very composition of these bodies raises the question as to whether they would be likely to produce significantly original thinking or proposals to radically alter existing curriculum provision. Indeed, it is possible that they may strengthen the status quo by allowing the central authorities to claim that important matters are receiving close attention, yet they can only produce <u>recommendations</u> which ministers are free to overlook. Certainly the Macfarlane Report on Education for 16 to 19-year olds fits this pattern and has been called "disappointing and predictable" by the two main head teachers' organisations.[5] By contrast, the advisory councils were, as laid down in the 1944 Education Act, designed to play a more active and independent roles. Their members were to be drawn from both the state-run and independent sectors, and they were intended to exercise considerable initiative and freedom in determining their own procedures. That the 1944 Act was so interpreted as to allow these statutory bodies to disappear provided an early indication of what was to become a dominant trend in the 1970s.

The LEAs comprise the second level in the educational hierarchy. They are semi-autonomous bodies with responsibility for implementing policies laid down by central government. While constrained by the need to carry out these statutory duties, they have, in the past, exercised considerable discretion both with regard to the <u>way</u> these duties were carried out and in the initiation of policy at the local level. For example, Chief Education Officers were able to influence curriculum developments by placing chosen candidates in key positions, thus ensuring that their proposals were favourably received. Men like Sir Arthur Clegg of the old West Riding of Yorkshire are widely recognised for the curriculum initiatives they promoted (and, in this case, the establishment of a very successful system of in-service training for teachers).[6] Kogan maintains that in many areas Labour-controlled LEAs "created" the comprehensive school, but this probably

over-states the case since most comprehensives were in fact a direct result of government legislation. Other authorities, such as Tameside, have successfully continued to resist the establishment of a non-selective pattern of secondary education in the face of powerful pressure from the (then) Labour Secretary of State, so clearly some degree of local autonomy still exists. More recently LEAs have supported the establishment of teachers' centres and cooperated with curriculum projects of various kinds. However, this said, it is undoubtedly the case that the degree of autonomy exercised by LEAs has declined significantly over the last twenty years.

To begin with, the ending of percentage grants for education in 1958 served to bring education authorities more in line with other local services. The trend continued when the Local Government Act of 1972 ended the era of old-style 'charismatic' leadership and ushered in a more corporate form of management in which influence of individuals became subordinated to the rule of committee procedures. Again, the Tameside episode was foreshadowed in 1967 when a group of parents successfully challenged the right of Enfield Borough Council to establish a 'mixed entry' scheme at the local grammar school. Kogan comments that:

> the Enfield case demonstrated a change of general….understandings about the right of the Secretary of State and the local authorities to determine educational issues. The point of view upheld by the courts was that parents had a right to be protected against abuse of power and discretion.[7]

Thus legislation changes and the politicisation of educational decision-making (particularly with respect to the attempt to end secondary selection) have served to restrain the ability of LEAs to initiate local developments. However, the single most important constraint on LEAs is financial.

Fowler reminds us that "the vast bulk of an LEA's expenditure upon education….is determined <u>before</u> it considers possible policy changes".[8] (My emphasis). Teachers' salaries, the wages of ancillary staff, servicing capital loans, the payment of rates and the provision of services such as school meals take up some 95% of the funds available for education – and possibly more in today's harsh economic climate. Indeed, as central government has progressively enforced reductions in educational expenditures upon LEAs the evidence suggests that some, if not all, of the latter are finding it impossible to meet all their <u>statutory</u> duties (such as providing text books), let alone provide money for local initiatives.[9]

These severe financial pressures have, at least for the present, reduced the autonomy of LEAs to the point where their ability to initiate or support curriculum change is becoming vanishingly small. Thus, for example, in-service training (INSET) for teachers remains strikingly underdeveloped in most areas. Even the modest proposals of the James committee on teacher training (1972) for a minimum INSET provision for all teachers of one term in every seven years have progressively scaled down.[10] Similarly, support for non-statutory activities in areas such as adult education, nurseries, community service and discretionary grants has become harder to maintain. Within the schools, evidence

mounts that minority subjects and the arts are under severe pressure or, for many pupils, no longer available.[11] Fowler has coined the term 'disjointed decrementalism' to describe this process of attrition in the schools.[12]

Traditionally the primary locus of control over the curriculum has been at the level of the individual school which, in the British system, has enjoyed wide latitude in interpreting local and national directives. The only specific curricular requirement relates to religious instruction and the need to perform a 'daily act of worship', and even these are interpreted broadly or even ignored. This reflects the fact that responsibility for the day-to-day running of a school rests with the head teacher, with only nominal assistance from a board of governors. In practice, the influence of the latter varies widely, and in most schools the head represents the single most decisive influence upon the curriculum. This influence is pervasive and affects not merely the structure and content of the curriculum but the working ethos of the school. Indeed, leadership style crucially affects what is deemed possible and desirable in any school.[13] [14] This hierarchical mode of organisation has its weaknesses but it is an arrangement which has proved strongly resistant to change. Nevertheless, the head is not entirely a free agent. He or she is constrained by social, political and professional imperatives and must continually carry out the complex and difficult task of mediating between these. A major reason for the persistence of a strong role for head teachers is undoubtedly connected with the fact that it is they who bear a major responsibility for the school. Employers and other interest groups also find it easier to deal with a readily identifiable head than with members of a team whose functions and roles may be less clear.[15]

There is no doubt that a climate of retrenchment and financial stress has placed unprecedented demands upon schools. Falling rolls also threaten the viability of marginal curricular elements, sixth forms and even entire school units. Thus energy and ingenuity that might once have been directed towards innovation is now commonly pre-empted by the struggle to survive and to maintain existing provision. As Fowler notes, by the late 1970s:

> the power of the head teacher in determining his own priorities….and the power of the teacher in the classroom to teach his subject as he though best, remained unchanged; but the power of either to innovate or develop by spending new money had virtually disappeared.

He adds, "in conditions of resource constraint the 'partners' in the government of education became locked into the consideration of ever narrower policy options at every level".[16] Thus one answer to the question of who might be said to control the curriculum is 'those who control the distribution of resources for education'. However, before considering this further we need to look at the role of the teacher because it is within the classroom that the final decisions are made.

It has been noted that the idea of teacher autonomy is weakened by the extrinsic demands imposed by the examination system. The same may be said in regard to conditions of employment, acceptance of the hierarchical authority structure of schools and the need to

respond to social pressures. Yet teachers do play an important part in the determination of policy at all levels. At the national level the teaching unions and the ill-fated Schools Council (which until recently had a built-in majority of teachers) are (or were) frequently consulted by government and represent teachers' interests, albeit in rather different ways. At the local level teacher representatives sit on education committees, and teachers themselves take part in study groups, conferences and so on. Within the schools it is an unwise head who does not consult teachers and seek their cooperation, since the latter have the means to subvert proposals that they find unpalatable or unworkable in their view. And once inside the classroom, teachers are not – apart from an occasional visit from an inspector – subject to external supervision. Teachers thus have a direct influence upon the curriculum, both in terms of broad policy and implementation. Their control over the latter is decisive, as the history of many curriculum projects shows. The attempt to design 'teacher-proof' curriculum packages is now widely regarded as one of the least productive approaches to innovation.

Teacher autonomy is therefore real enough in the context of the classroom, but it is a limited, qualified autonomy hedged around with conditions and imperatives which must be given due consideration. It is the combination of multiple demands made upon teachers' time and energy by pupils in the course of everyday school life, the difficulties and tensions arising from the hierarchical organisation of schools and the plethora of external pressures that gives teaching its particularly embattled character. This, in turn, helps to explain why all teachers necessarily evolve strategies to reduce dissonance and 'filter out' unwelcome stimuli. However, since teaching involves social duties that require a social mandate, a profound conflict arises between teachers' psychological and professional needs. The former seem to encourage a narrowing of consciousness in order to deal with practical, uncertain problems in the classroom,[17] while the latter arguably call for a broader scanning of the cultural environment and an articulated awareness of wider issues.

This is a crucially important issue that a 'futures' approach to curriculum may help to resolve. When the cultural environment is itself displaying evidence of conflicting interests, goal ambiguity, pluralistic values and rapid social/technical/economic change, then this conflict is sharpened and the teaching profession is presented with confusing and contradictory signals. For example, Fowler describes how repeated complaints from business and industry that young people lacked essential basic skills led to the institution of programs to remedy these defects. Yet he found "no evidence to suggest that school leavers of the middle 1970s were less well-equipped educationally that those of earlier periods – but rather the contrary".[18] Similarly, parents and universities require schools to spend much of their time preparing pupils for examinations, while HMI condemns what it calls schools' "passive adaptation" to the examination system.[19] It is therefore clear why teachers tend to 'block out' much of this turbulence and turn inward to immediate tasks. But, given the fact of continuing rapid change, this response is not adaptive in the longer term. Clearly teachers need to develop more constructive strategies to deal with this problem.

From the above it can be concluded that control over the curriculum is widely distributed throughout the system such that no single locus of power has overall command. "There is no system" writes Kogan, "in which the centre can simply make up its mind and then promulgate disaggregated chunks of policy to the system".[20] This situation has clearly been regarded as unsatisfactory by successive governments, and no account of the curriculum in England and Wales would be complete without reference to attempts by the central authorities to exert greater influence and control over it.

Three factors have already been mentioned; the replacement of a percentage grant to LEAs; their re-organisation into a more corporate form of management; and the de-commissioning of the Central Advisory Councils, contrary to the 1944 Education Act. Kogan mentions other changes that had occurred as early as the 1950s which, in his view, "decisively altered the balance of power between central and local government". These included "the creation of the Architects and Building Branch, and the control and predictive mechanisms for teacher supply, the Teacher Supply Branch".[21] It is worth noting, however, that the government sometimes failed to get its way. Thus, the attempt to found a Curriculum Study Group (CSG) within the Ministry of Education in the early 1960s, partly in order to oversee the development of the then new CSE examinations, foundered upon the opposition of LEAs, teacher unions and others. The body that was later founded in 1964 in place of the CSG was the Schools Council, and at that time teachers were permitted to maintain a majority within it. (See section 1.2.1)

Later developments were to prove even more controversial than the abortive CSG. Of major importance was the setting up of the Assessment of Performance Unit (APU) by the DES in 1974. To some extent this reflected a legitimate concern to monitor standards within schools and to allay public anxiety about this. But critics have noted how the DES attempted to deflect potential opposition from the teaching profession to a program of national monitoring by associating it with detecting under-achievement, which was as Lawton suggests "much less offensive professionally".[22] Lawton traces the way that emphasis on national standards of attainment quickly became the major focus of the new body and gave rise to growing concern about the nature of its activities and its possible effects on the curriculum. In his view, the danger of 'back-wash effects' (ie 'teaching to tests') has been underestimated. There are problems regarding the disclosure and interpretation of results. There has been an over-emphasis on standards at the expense of diagnostic tests (which are more useful to teachers). There are also outstanding statistical problems.[23] In any event, the establishment of the APU represented a major administrative initiative on the part of central government, and it remains to be seen whether or not critics' fears are wholly justified.

The next major development occurred in October 1976, when the then Prime Minister launched a 'Great Debate' about the purposes and methods of schooling in his speech at Ruskin College. The speech itself was unremarkable except for the strong emphasis it gave to the need to prepare pupils for 'working life' in an 'industrial society' (two concepts to be re-examined later). This was followed by a number of inconclusive regional conferences, and the publication in 1977 of the green paper Education in Schools: A Consultative Document. This asserted that "education, like any other public

service, is answerable to the society which it serves and which pays for it",[24] and went on to outline a series of measures designed to establish a "broad agreement….on a framework for the curriculum". Among its criticisms of schools were that "only a minority….convey adequately to their pupils the fact that ours is an industrial society".[25] Furthermore, the Secretary of State signalled her intention not "to abdicate from leadership on educational issues which have become a matter of lively public concern".[26] This was followed by other official publications which are discussed below.

It is too soon to know how effective these assertions of greater centralised control will turn out to be. (However, since this was written, proposals to disband the Schools Council and replace it with two government nominated committees represent a further decisive move in this direction.) In a decentralised system no single agency has decisive power or access to any straightforward way to obtain it. Diffuseness of control appears to be an intrinsic problem owing to the 'loose coupling' between decision-making groups and the unavoidable uncertainties associated with educational problems. Certainly political decisions to reduce funding to schools have, as we have seen, had severe consequences, and these continue to inhibit innovation and change. Yet control via resource allocation is an undiscriminating and largely negative approach which tends to generate opposition and a variety of compensatory responses in other parts of the system. These may not simply take the form of searches for alternative sources of funding and more cost-effective delivery systems, but may also involve attempts to de-legitimise aspects of government policy. When the latter draws upon implicit and out-dated notions of the 'needs' of an 'industrial' society, governments may unwittingly accelerate the process by failing to recognise the significance of structural changes which indicate to many observers an irreversible move away from classical industrialism. (See section 1.2.2).

Margaret Archer's impressive study of the 'Social Origins of Educational Systems' lends support to the view that, in a traditionally decentralised system, attempts to increase government control are unlikely to succeed. In her view a "de-centralised structure conditions small localised changes which intensify the autonomy which allowed them to occur in the first place". She continues, "this in turn distributes vested interests in educational control more and more widely throughout society."[27] If this analysis is correct, then we may expect a further diffusion of control as more interest groups become active. This could, in turn, exacerbate the problems faced by the teaching profession and further erode the 'steering capacity' available to government. These issues are taken up below. At this point the focus of the enquiry turns to the structure and content of the secondary curriculum (leaving a consideration of the 'hidden curriculum' to a later chapter).

1.1.3 The Structure and Content of the Secondary Curriculum

During the last ten to fifteen years the curriculum literature has reflected a growing interest in issues which underlie more familiar administrative concerns, ie, the attempt to define objectives and matters of content. More people now recognise that the planning, organisation, implementation and evaluation of learning experiences in schools cannot be separated from wider social processes and problems.[1] Thus today curriculum theorists are increasingly aware that the structure and content of the curriculum are, for example, related to issues of power, equity, purpose and meaning, and that the latter also require serious and sustained attention. Some of these issues are considered below. This section employs official surveys that can be criticised for their superficial approach to curriculum problems. As will be suggested later, (section 1.2.2) both the DES and HMI share certain taken-for-granted assumptions, often use curriculum concepts unproblematically and fail to address a number of important issues. Their views of the curriculum generally lack rigour and their recommendations are sometimes of doubtful value to teachers.[2] Nevertheless the survey data is, within its limitations, reasonably authoritative. Thus to consider official pronouncements regarding 'structure' and 'content' at this level is not to accept that it is the most profitable or penetrating approach. On the contrary, it will be used only as a starting point to gain a broad overview of curriculum provision. This will help illuminate aspects of 'the curriculum problem' and prepare the way for a consideration of innovation and reform.

The basic structure of the secondary curriculum in England and Wales appears to be remarkably consistent from school to school, although there are many differences in detail. HMI comment that "given the large measure of self-determination which schools enjoy, they appear remarkably similar in their broad characteristics."[3] It is these broad characteristics that concern this enquiry. (This is not to deny the importance of detailed differences in other contexts). The usual pattern is for pupils to follow a reasonably wide program of studies until their fourth year. This program is substantially the same for most pupils and comprised largely of traditional subjects. The time typically devoted to each of these in a week was found by HMI to be as follows:

English	5-7 periods
Mathematics	5-7 periods
Religious Education	1-2 periods
Physical Education	3-4 periods
History and Geography	4-6 periods in total
Sciences	4-6 periods
A Foreign Language	4-5 periods

In addition to the above were some or all of Art, Music, Crafts, Careers Education and Drama.[4] During this period, very little differentiation according to sex was observed, but differentiation according to ability was widespread, being found in some two-thirds of the schools studied.[5] Remedial teaching was commonly provided up to the fourth year, but a progressive decline was noted as this was absorbed into the lower sets, bands or streams.[6] Pupils considered to be more able were often permitted to begin a second language or to

devote more time to a specific branch of science. Significantly enough, in the light of the so-called 'Great Debate', the subjects most likely to be dropped to make room for the additions were craft subjects.[7]

In the vast majority of schools studied by HMI the structure of the curriculum changed dramatically at the beginning of the fourth year in order to accommodate examination study programs, and to provide a wider choice of subjects. However, nearly all schools retained a de facto 'core' for both the fourth and fifth years. For most pupils this took up some two-thirds of the timetable and was make up of English, Mathematics, P.E. and games.[8] Some schools also included Religious Education and Careers here. The remainder of pupils' studies was accounted for by a system of options that clearly gave rise to a number of difficulties. However, the inspectors were careful to recognise the efforts made by schools to reconcile students' wishes with practical constraints. "In general" they wrote," schools spend much time and effort….devising arrangements of great complexity to permit the maximum amount of pupil choice and provide for different levels of ability."[9] Typically, options were found to take up over half of the students' timetables in these final two years, but too often study programs became narrowed, with the loss of 'important subjects' such as French of the Sciences.

The range of options was restricted in small schools, but it was the complexity of these systems and the frequent loss of 'coherence' which concerned the inspectors. The fact that each student within a school could potentially take a unique set of options made it very difficult for teachers to keep track of individual programs and retain a grasp upon the curriculum "as a whole".[10] Thus the inspectors felt that while individual additions to the curriculum could be justified singly, "too little account has been taken of the cumulative effects of expansion".[11] The proliferation of options left less time for existing subjects and could in some cases lead to the selection of unwise combinations. Cause for concern was also expressed at the "present position" of religious education, foreign languages, history and commerce. The latter was "rarely studied by able pupils".[12]

Two other problems noted by the inspectors concerned the less able and examinations. In the former case, they found that schools had difficulty finding teachers with remedial and subject qualifications, that programs offered to the less able "were seldom successfully pitched at a level which both retained interest and demanded worthwhile achievement", and that this important area of provision represented an "as yet largely unsolved problem".[13] With regard to examinations, the inspectors found that some pupils were being examined in subjects "inappropriate to their particular abilities", while 'more able' pupils risked a premature narrowing of their curricular program, due to the pressure of examination requirements.[14] They concluded that while examinations could have positive effects, on the whole, "the very high priority accorded to….(these)….by schools, parents and employers has effects which far exceed the purposes for which they were designed."[15] In particular, schools were criticised for their "passive acceptance" of the examination system, and were urged to reconsider the balance in their curricula between "examination requirements and wider educational aims".[16]

A further conclusion to emerge from the survey, but one not properly explored by HMI, is how little the secondary curriculum has changed in its broad character during the post-war period. Numerous incremental changes have occurred: new options in the fourth and fifth years, growing acceptance of careers, education for industry, global studies and so on. But curriculum change remains patchy and uncertain, and is still dominated by traditional subject structures that are geared to the instrumental requirements of the examination system. Even the shift to comprehensive schooling, which provided an opportunity for re-thinking the nature of curriculum provision, has not materially altered this picture. As HMI has noted:

> the establishment of comprehensive schools, now providing for more than 80% of the pupils, and the raising of the school leaving age have not led to any radical re-shaping of the curriculum, which essentially continues the practice of the selective schools with some added features taken from the modern schools.[17]

Both HMI and the DES[18] express a concern for curriculum 'coherence' (although neither are very clear as to what this might mean in practical terms), and agree on the need for a nationally agreed framework to guide decision-making at all levels. But their surveys show how little real progress has been made. Furthermore, the strains now being generated within the system by resource cutbacks make any fundamental re-appraisal of the curriculum progressively more difficult, at least from within the system. Another survey carried out by HMI for the Expenditure Steering Group on Education (ESGE) provides further evidence of a narrowing of curricular provision, and a drastic reduction in innovative capacities.[19]

The survey found that in a number of schools foreign languages, some of the humanities, music, craft design and technology, and swimming were being dropped entirely. Other subjects were found to be suffering a narrowing of range and content, due, for example, to reductions in practical work, shortages of textbooks and supplementary materials, lack of field-work and constraints on homework and individual enquiry. Some four-fifths of the LEAs surveyed had experienced declines in the purchasing power of their per-capita funding. Many schools had attempted to raise funds by seeking parental contributions, and in some places these had more than offset reductions in LEA funding. This, however, served to favour large schools and schools in prosperous areas, while smaller schools and those situated in less well to do areas lagged behind. The overall effect of seeking supplementary funds from the community was therefore to exacerbate differences in resource levels between schools.[20]

Pressures on teachers had increased for a variety of reasons: cuts in ancillary staff, a "marginal worsening" of the teacher/pupil ratio; an overall reduction in advisory services; larger classes with wider ability ranges and the need to teach unfamiliar subjects. In some secondary schools "staff were found teaching 35 to 40 periods a week". Other problems included "a reduction in….expertise in some subjects; a disproportionate number of temporary staff in some departments; probationers under pressure; wide-ranging abilities in classes taking public examinations".[21] In only half of the authorities surveyed was the amount and range of in-service training considered to be "satisfactory", and even here a

"substantial swing" was noted away from courses held in school time to those held in teachers' own time. HMI also found that "in-service training outside the locality is harder to come by", and noted a tendency "towards increasing local differences rather than (the) spreading (of) ideas across boundaries".[22] In these circumstances it is hardly surprising that "there is evidence that teachers' morale has been adversely affected in many schools".[23]

Thus not only has the broad character of the secondary curriculum remained fundamentally unchanged, but some recent improvements are being lost. One may now detect a marked regression toward a simplified curriculum structure oriented to what are considered to be irreducible 'basic' human skills (ie, the 'three Rs') and 'economic needs'.[24] However, it will be argued below that, in a context of rapid and continuing change, these concepts become increasingly problematic to the extent that they rely on models and assumptions inherited from the industrial era.[25] Similarly, given the stresses now being experienced within the system, the energies of teachers and administrators become pre-empted by the need to maintain existing structures, leaving little for forward-looking adaptation and change. In short, the structure and content of the secondary curriculum continue to reflect "past perceptions of problems", and thus fail to prepare individuals for the radically different futures that can now be envisaged.

1.2 Curriculum Reform

Section 1.1.1 attempted to indicate the broad character of the secondary curriculum and some of the pressures impinging upon it and upon teachers. The purpose here is to review some of the main post-war attempts to bring about reform and to institutionalise innovation. The relative failure of many of these initiatives leads to a consideration of problems underlining the metaphor of curriculum lag. An understanding of these helps to underline the need for a futures approach (developed in section four). In turn, the whole of section one exemplifies the principle that any attempt to explore future options must be grounded in defensible understandings of existing structures and processes.

1.2.1 An Overview of Post-War Curriculum Development

If the external pressures on the curriculum are complex and difficult to resolve, no less may be said of the internal structure of the field which has developed to study it. Since the Second World War, curriculum development has become an academic growth area in Britain. While it remains small in comparison with the total expenditure on education, it does engage the efforts of a significant number of administrators, academics, researchers and teachers. Its growth has been assisted, and accompanied by, a literature characterised by diversity and range of approach. Various theories, styles, techniques and concepts have emerged which contend with, supplement, and sometimes achieve a measure of congruence with the work of other individuals and groups. Hence, there is no universally accepted central theory of curriculum. Boundaries are uncertain and shifting, and much of the structure and development of the field remains obscure. As Stenhouse notes, "no adequate history of curriculum development has been attempted, and it would be a major research enterprise to provide one".[1] Thus, the concern here is not with close-up details, or even with individual curriculum projects. This section concentrates on establishing a broad, strategic overview of development processes in terms of major institutional initiatives and trends.

It is sometimes forgotten that curriculum development as an identifiable and organised field of activity has a rather longer history in America than in Britain. So it is worth taking a brief look at early trends there in order to identify issues which were later to arise in the British context. In Britain, official control over the curriculum via the syllabuses of public examinations arguably retarded the development of the field until the 1944 Education Act established a new 'partnership'. Prior to this, the scope for innovation was small. As Owen puts it, "until the 1940s, the secondary school curriculum ran the risk of having life choked out of it as syllabuses became more refined, more demanding and less open to individual interpretation".[2] On the other hand, in America the field had been active from the late nineteenth century, and by the early years of the twentieth, Kliebard suggests that it had taken "two early directions".[3] At the risk of oversimplifying, it may be said that one 'direction' represented by men such as Dewey and Kilpatrick, was child-centred, experiential and focused on helping individuals achieve practical and intellectual independence. The other, represented by Bobbit, and later by the very influential Tyler, was more utilitarian, subject-centred, and empiricist. In this latter view, the curriculum was to be understood as a scientific and systematic

preparation for adult roles, and was thus organised around notions of prediction and control. While elements of the former tradition became incorporated into the ideology of Progressivism in primary schools on both sides of the Atlantic, it was the latter that became dominant in the context of American secondary education.

Bobbit had admired the 'rational organisation' evident in industry and the work of F.W. Taylor, often known as the 'father' of scientific management in that sector. But the former went beyond the transferral of managerial techniques from factory to school. In his work "the metaphor of the factory was carried into the techniques of curriculum development and the criteria by which curricula would be judged".[4] The appeal to science, then as now, proved persuasive, and consequences of this 'ideology of social efficiency' were widespread (though not without opposition and counter-movements). Elements of the curriculum such as arts and languages were felt to be 'non-functional' and pruned or dropped entirely, and even English and Maths were given "a more directly utilitarian orientation".[5] This tendency to analogise from industry to the classroom gave rise to a set of understandings which have had some influence in Britain, and which still attract the critical concern of observers today. In this view, the child could be conceived "as the raw material, the ideal adult as the finished product, the teacher as the worker, the supervisor as the foreman, and the curriculum as the process whereby the raw material was converted into the finished product". Cremin also adds, "to the extent that the characteristics of the raw material, the finished product, and the conversion process could be quantitatively defined, rationally dealt with, and objectively appraised, curriculum making could become a science."[6]

It should not be imagined that this extreme view has prospered in Britain. But elements of the 'factory model' of schooling may be discerned in some of the early curriculum projects and the claim to scientific status still characterises some approaches to curriculum research.[7] The extent to which the vocabulary of the field may be influenced by notions of control is more problematic, and this continues to generate controversy.[8] Again, while comparisons between Britain and America suggest that the ideology of 'social efficiency' has been less influential in the former, attempts by British governments to reassess the curriculum in the light of economic and industrial needs may to some extent draw on these instrumental conceptions of education and pose similar dangers.[9] Such issues cannot be pursued in detail here. They are raised partly to expose some deep-seated curriculum problems, and also because they represent aspects of wider cultural problems and trends that will be addressed below.

Three broad phases of curriculum development may be distinguished in England and Wales during the post-war period. The first runs from 1944 to the establishment of the Nuffield Foundation projects in 1962. The next phase extends to 1976-77, and saw the decline of large scale development projects and the beginning of the 'Great Debate'. The last phase brings us to the present period of recession and intense competition for resources. It is, of course, recognised that a more detailed account could yield other categorisations. However, in this overview, the focus of attention must be that of major institutions and trends. The 1944 Education Act established a new working relationship between schools, local authorities and central government in which the former were

permitted considerably more apparent autonomy. (Apparent, because examinations and their associated syllabuses still dictated the basic curriculum structure). In any event, this period was characterised by the convergence of political, administrative and professional views noted in section 1.1.2 above. Curriculum development during this period amounted to little more than numerous small scale, and frequently ad hoc adjustments, largely in response to the changing demands of the examination system. As McMahon comments, "the one-year cycle of public examination, post hoc analysis of the examination questions, and marginal adjustment….for next year's examination class….offered little scope for imagination and initiative in curriculum change".[10] Neither was this confined to the grammar schools. Under pressure from parents and others, both modern and technical schools aspired to 'separate but equal' status via public examinations, and by 1963 the Certificate of Secondary Education (CSE) system was established to cater for the demand.

Becher and Maclure dub this minimalist approach to curriculum development 'traditional', and show how it depended upon individual writers and publishers to produce teaching materials, which were then judged 'on merit' by practitioners. They point out how it optimistically relied "on the idea of a 'market' for innovation and 'market mechanisms' for the transmission of the fruits of curriculum development".[11] Furthermore, while the market process appeared to promote teacher choice, it also created uniformity in some areas: "…the fashions of professional taste and the demands of the examination system….led in some major subjects to the virtual domination of….a few popular texts."[12]

It is difficult to say exactly when this phase ended, - indeed, in some respects, 'ad hoc' or 'traditional' development continues to the present day. However, the launching of Sputnik in 1957 imparted a new urgency to curriculum development in the United States, and there is no doubt that this influence was also felt in Britain. But Becher and Maclure rightly point out that the multi-disciplinary approach to school building adopted by the Architects' Development Group in England, had already "forced curriculum issues into the open" and foreshadowed the Curriculum Study Group of the early 1960s. While the latter proved abortive, these developments did show that change was already 'in the air', as it were, and that the ensuing phase was not wholly American inspired.[13]

A more systematic approach to curriculum renewal in England and Wales was heralded by the Nuffield Foundation which organised and supported wide-ranging projects in Science, Maths and modern languages during the early 1960s. In many ways these early projects followed the basic American 'top-down' R and D model, but there are important differences. Stenhouse notes that American projects tended to centre upon "the renewal of content"; they involved "university personnel who worked outside education facilities", and they produced elaborate teaching materials which were subject to testing before dissemination. Special bodies were set up for this purpose and "success was attested by the number and range of schools adopting the curriculum so offered.[14]

A major difference in Britain was considerably greater involvement of teachers and teacher associations. The Association for Science Education, for example, played an

important role in the science projects (and continues to do so). The Nuffield Foundation drew primarily on this knowledge of the best practicing teachers, and while university personnel were involved, they were not accorded primary roles. Close cooperation with the DES and LEAs was sought and obtained, and a broad base for dissemination was established. In short, the foundation acted as a kind of temporary 'midwife', assisting in the birth of a new, and more ambitious, approach to curriculum development. While the R and D aspects of the approach were later to reveal certain deficiencies, it initiated the first widespread changes in the secondary curriculum and examination syllabuses since 1944.

The work of the Nuffield Foundation was taken over in 1964 by the Schools Council which adopted a similar approach to innovation and was to organise and promote some 160 projects over the next decade and a half. The new body also gave teachers a powerful voice in deciding policy, since the council was so structured as to give teachers a majority. But before looking at the Schools Council in more detail, it is useful to recall some of the justifications offered in 1960-61 by the then Permanent Secretary in support of the abortive Curriculum Study Group (CSG). In a letter to the educational associations, the CSG was portrayed as a timely response to the pressures of societal change and rapid increases in knowledge. The Permanent Secretary advocated the formation of "inter-disciplinary teams capable of bringing to bear on current and future problems a considerable concentration of skill and experience". (My emphasis.) He added, - and this is highly significant in relation to the theme of the present study, that

> it seems to us peculiarly important that we should make this contribution where it is a matter – as it so often is today – of foreseeing changes before they become apparent on the ground, and of placing before our partners in the education service a range of possible solutions to future problems.[15] (My emphasis.)

This remarkable statement provides an indication that, even at this early stage, DES officials were aware that rapid changes beyond the educational system implied a need for forward-looking inputs into the process of curriculum change. That the initiative foundered appears to have had less to do with the intrinsic merits of the case than its association with an attempt by the DES to take a more active role in curriculum matters. Professional educators, then as now, feared what they considered to be 'interference' in their domain and asserted that central participation was permissible only if it were exercised through a representative body which preserved the existing balance of power. In due course a committee was set up to consider the constitution of a body to succeed the CSG. Its 1964 report upheld the views of the teaching profession and, as Manzer writes, affirmed that "schools would retain the fullest possible measure of responsibility for their own work". The Schools Council "would be organised as a free association of partners, not advisory to the Ministry alone, but to all its member interest". Furthermore, it work would "lead only to recommendations, supported by nothing more than the authority of good research."[16] Also, as noted above, teachers were given a built-in majority on the Council.

Whether or not this represented a genuine victory for the teaching profession depends upon the view one takes of the subsequent history of the Schools Council and its work. At any rate, as Manzer suggests, the constitution of the Council represented "a concession completely in harmony with the customary manner of developing national education policy". He adds that the

> officials at the Ministry of Education who wanted to convert the (ESG) into (a) high-powered research unit….lost out to their more conservative colleagues, supported by the educationalists, who preferred to experiment carefully, to make no sudden departures, to try to assimilate the required adaptations within traditional practices.[17]

In many respects this passage summarises the spirit – and the central dilemma – of post-war curriculum development in Britain, that is, whether or not continuous adaptation to rapid change can be made within the ambit of 'traditional practices'. It is a question that will arise again below. Here it may be noted that the opportunity to adopt a more prospective and imaginative approach to curriculum renewal was frustrated by the teaching profession itself.

Perhaps the basic characteristic of the Schools Council is that it is non-directive. Its major function has been to provide a 'menu' of concepts, materials and methodologies from which teachers could make selections. Caston sees this approach as supportive of 'pluralism', one of the two essential values that he sees embodied in the council's work. In his view, pluralism in education means "the dispersal of power"[18] and this, he believes, protects pupils from repression, which is always a latent possibility in compulsory schooling. The other value is 'professionalism', the essence of which "lies in the exercise by individuals of choice and judgement in the interests (of) our pupils….in an impartial way". Also involved is "an obligation to provide this service in the light of all the relevant and up-to-date information which the practitioner can muster. "Educators", he adds, "must always be learners". If this 'double ethic' of impartiality and open-mindedness can be fulfilled, then, in Caston's view, "the professional can deny any outside authority the right to tell him how to do his job".[19] Unfortunately we are left guessing as to what should happen if, for one reason or another, the double ethic is not fulfilled. What, in fact, Caston is expressing here is an ideal of teacher practice, rather than a sober assessment of classroom realities. But it is an ideal that has value even if very few may approach it under existing conditions.

Caston provides a useful summary of what he considers to be the most important features of the Schools Council. These are:

1. the partnership it embodies between central and local government;
2. professional teacher control;
3. the avoidance of authority over teachers or schools, and
4. restriction of interest to "the what and how of schooling – the curriculum".[20]

Leaving aside the narrow view of curriculum in the last point, we may legitimately question whether the body thus described is truly innovative in character, or merely an instrument of consensual management. Prescott exposes some of the assumptions underlying this view of the Schools Council. Among these are that "teachers must have a majority voice in….decision-making"; that "teachers can be satisfactorily represented by their professional associations" which "can be relied upon to rise above a pre-occupation with questions of salary and conditions…."; that "the most appropriate strategy for curriculum change is to enlarge the teacher's choice and leave it to him to respond" (ie the image of the 'rational consumer'); that "the bulk of expenditure should be on centrally produced materials"; and finally, that "it is advisable for a national agency to limit itself to curriculum questions and not become involved in broader policy issues of a more political character".[21]

One may detect in the above traces of the American 'factory model' of schooling: the emphasis on 'curriculum as materials'; the implicit view of the teacher as 'cultural technician' making 'rational' disembedded choices on behalf of pupils; the avoidance of underlying political questions all look back to the naïve empiricism of Bobbit and Tyler. And, as suggested above, many of the early British projects also followed a 'systematic R and D approach'. Yet fortunately, this is by no means the whole picture. As McMahon reminds us, by the early 1970s, "the major trend (was) away from the central production of written materials…toward greater involvement of teachers in writing, as well as in the field of testing and revision of materials".[22] Indeed, this helped to promote such a diversity of approach to curriculum innovation that a special study was carried out to monitor it, and led to the publication in 1973 of the report 'Pattern and Variation in Curriculum Development Projects'. The report confirmed the existence of a wide range of approaches, but also questioned the viability of funding temporary projects, arguing instead for a more continuous and broadly-based system.[23] Stenhouse also emphasises the fact that not all projects concentrated on materials and dissemination. He cites the example of Project Technology which was "more concerned with influencing the educational climate than with producing materials or developing methods".[24]

By the mid-1970s it was becoming clear that the project-oriented 'menu' approach promoted by the Schools Council did indeed have serious defects. Studies such as Shipman's 'Inside a Curriculum project' (1974) showed, among other things, that teachers seldom had the time or expertise to master new materials or teaching techniques, and frequently reverted to traditional practices when formal project activities ceased. Other studies showed that far from constituting a 'menu' or 'market place' from which teachers could make open and informed choices, even heads were, in many cases, not aware of the existence of major projects. Hence adoption rates tended to be poor. One survey in 1975 showed that the uptake of Schools Council projects ranged from zero for 'Science 5 – 13' to 29% for the 'Humanities Curriculum Project'. Of the other thirteen projects in that part of the survey, fully ten of these showed single figure percentage adoption.[25]

Thus even in its own terms, the School Council could not be satisfied with the effectiveness of its strategy. Its own working party on dissemination published a report in

1974 which located the central problem. It stated that the reality is that changes in the curriculum require not only willingness on the part of teachers to change their ideas but also the capacity to implement these changes. The true targets of curriculum innovators are the teachers' knowledge, skill and understanding.[26]

This was an important change of emphasis. It focused attention upon the milieu of the school, the practical difficulties teachers face and on the personal capacities and skills that are needed if innovations are to succeed. It also raised questions about the adequacy of provision for INSET and other teacher support services, both of which had been (and continue to be) absent or seriously under-funded in some areas. Thus the report foreshadowed a significant re-allocation of resources to local and school-based development. This was to become a major feature of the next phase. However, before looking at this, it is necessary to question the extent to which the Schools Council was, in fact, committed to a thorough-going program of curriculum renewal.

It was noted above that, at its very inception, the council represented, in part, a rejection of DES initiatives to pursue a broadly anticipatory approach to curriculum issues in favour of a more 'traditional' and incremental approach which gave representatives of the teaching profession overall decision-making power. In retrospect, this 'victory' for the profession seems equivocal, to say the least. The 'double ethic' of impartiality and open-mindedness which Caston suggested could support teachers' claims to professional autonomy (and thus their right to dominate the council) has not been fully realised. Similarly, also as related above, no fundamental changes have taken place in curriculum content and structure as a result of Schools Council projects. While there have been some moderate successes, and while some high quality work has certainly been carried out, Corbett suggests that "the council has pursued a narrowly professional line in which protectionism has been more apparent than progress".[27] She relates how some of the most innovative proposals have been turned down, and cites in particular the refusal of the Program Committee to fund research into racial issues as an extension of the Humanities Curriculum Project. She concludes that "the council is far more a forum for teacher politics than a force for innovation", and adds that "at its most positive it promotes a professional consensus….At its most negative the council is a defender of professional interests".[28]

Lawton generally agrees with this assessment, and explains the declining influence of the council as a consequence of the dominance within it of teaching unions and teacher politicians whose interests have frequently centred on the traditional issues such as 'pay and conditions'. But he also points to factors external to the council. These include a growing general disenchantment with education, cuts in educational expenditure, opposition from the DES and other bodies to examination reform and the neglect by LEAs of INSET.[29] Thus the council was not entirely to blame for its lack of success in transforming the curriculum. As will be suggested below, lack of adequate INSET alone acts as a powerful constraint on innovation, and its absence arguably places the kind of professionalism advocated by Caston well beyond the reach of most teachers.

Some council projects have attempted to cross subject boundaries. The North West Curriculum Project, Keele Integrated Studies and the Humanities Curriculum Project are examples. But, generally speaking, interdisciplinary projects have not thrived. Certainly, this type of work imposes additional strains upon teachers and school organisation; it is often more difficult to examine; its perceived relevance to vocational needs may be obscure and there is seldom an effective body of professional support to fall back on. This helps to explain, though not excuse, the council's failure to challenge what Dale describes as "the legitimacy of existing subject hierarchies".[30] Perhaps the deeper origins of this failure may be sought in what can be described as the 'cultural conservatism' of the whole curriculum reform movement. In Dale's view, the latter does not embody a critical re-evaluation of the curriculum in the light of changing circumstances. Rather, it represents only "a celebration of the range of possibilities contained in the dominant culture". While "many curriculum innovations have had some impact on the way particular school subjects are conceived", Dale suggests that "there is room for an infinite number of liberal reforms – reforms which ameliorate but do not address the structural basis of social problems".[31] Without endorsing the implicit political stance of this criticism, it does suggest that, while due weight must be given to the many practical problems raised by attempts to reform the curriculum, a deeper understanding of the relative failure of curriculum reform must take into account cultural and ideological factors. (See section 1.2.2, below)

It is an oversimplification to suggest that the era of centrally directed projects ended in the mid 1970s and ushered in a completely new approach. What in fact occurred was a slow change in emphasis consequent upon the realisation that expensive projects often failed to take root. Thus a central feature of the third phase of innovation has been a greater emphasis on local support accompanied by continuing efforts to understand the nature of innovation processes and constraints. The overall context of these activities has been conditioned by the adoption of a more interventionist role on the part of the central authorities, a climate of retrenchment and contraction, and serious financial difficulties arising from the bleak economic situation.

The recognition, backed by research,[32] that the 'culture' of schools in general, and the responses of teachers in particular, govern the success or failure of innovations, has stimulated attempts to create 'local infrastructures' for change. In Bolam's view the minimal function of the latter is simply to "support local teachers and schools seeking to introduce externally developed innovations". A more ambitious interpretation is to see these infrastructures as helping schools to regard themselves as "problem solving systems" with a "capacity for self-renewal".[33] This is analogous to Skilbeck's program for "school-based curriculum development".[34] Both draw on reconstructionist models and conceive of teachers as change agents, capable of drawing criteria for practical action from an analysis both of school situations and wider cultural issues. Yet such a view of teachers' capacities and roles may require more of them than can reasonably be expected, given the nature of their training and the continuing inadequacies of existing support structures.

It is true that some resources have been made available to support local curriculum development. For example, Bolam suggests that "the dramatic growth in the number of teachers' centres in England and Wales….represents an educational innovation of considerable significance". He adds, "ten years ago there were only a handful; at the last count there were over six hundred".[35] The existence, however, of local teachers' centres does not automatically promote innovation in primary schools, least of all in secondary schools. Only the largest authorities can afford to fund centres that cover the full subject range. Even where facilities are good it is a sad fact that "the vast majority of teachers who regularly attend teachers' centre activities appear to be from primary schools""[36] This is not surprising given the constraints and pressures under which secondary school teachers work.

Some local support is also provided by the 2,000 or so advisers employed by local authorities. These are frequently involved in organising in-service training, and in facilitating a two-way flow of information between schools and LEAs, and in some cases between groups of local schools. However, the role of advisers may be limited. To begin with, most are concentrated in a few specialised subject areas. Secondly, they are few in number compared with the teaching profession as a whole. Thirdly, their effectiveness in promoting innovation is unclear. On the one hand, Shipman's research into the Keele Integrated Studies Project showed that advisers were "centrally engaged in promoting curriculum change", while other studies suggested that they seldom had time to give adequate follow-up support.[37] In addition, there appears to be some conflict between the professional role of advisers qua advisers, and the evaluative tasks they are required to carry out on behalf of their employers. Thus, in some areas, they have attracted criticism from heads and teacher associations which cannot but have undermined their ability to participate in innovation.[38]

Other local initiatives are summed up by Bolam under the heading of 'leagues, networks and consortia'. These refer to a number of arrangements whereby participating schools form a mutually supportive innovation group, usually aided by teachers' centres, advisers, and in some cases by project staff. Two projects that have followed this pattern are the North-West Curriculum Project, which fully utilised teachers centres, and the Geography 14 – 18 Project.[39] Bolam was cautiously optimistic about the potential of these strategies to stimulate and support teachers and schools at the local and regional levels, but the experience of some projects suggested that such groupings may only be ephemeral.[40]

Meanwhile, during this most recent phase, the Schools Council carried out its evaluation of previous work to the point where it was prepared to strongly support local initiatives. This was clearly expressed in a 1980 newsletter which stated that

> teacher participation has emerged as the common theme in the major activities planned by the council for the next three years. Major research and development projects at national level have now done their work….The ball is now largely in the teachers' court to take advantage – along with schools and LEAs – of locally organised research, curriculum development, workshops and courses. The role of the Schools Council will be to help, both financially, and in the coordination and publication of the work of teacher-groups throughout England and Wales.[41]

In some respects, this may be seen as a timely and decisive shift of emphasis which reflects the crucial fact that "ultimately curriculum development comes through decisions by teachers in classrooms".[42] But there are several reasons why optimism should remain qualified. (One is the fact that, since this was written, proposals have been put forward by the Conservative government to disband the Schools Council and to replace it with two, much smaller, government-nominated committees.)

Still present in the council's new approach is the image of the teacher as a 'rational adopter'. Free to select, choose, act and innovate more or less at will. It is an image which is becoming increasingly hard to sustain since teachers are increasingly subject to constraints that limit their freedom of action and choice.[43] Again, the fact that the curriculum field has produced no satisfactory theory commanding wide agreement which teachers could use to underpin their work, makes it difficult for the latter to respond to social pressures. Also, the distribution of responsibility within the system remains obscure despite the actions of central government. But beyond all this les a set of taken-for-granted assumptions about the nature of society and the world which appear common to all the major 'partners' in the system. If, as will be suggested in section 1.2.2. some of these assumptions prove unable to sustain the weight of critical scrutiny, then the existing grounds of teacher action, decision-making and innovation may be even more problematic than has hitherto been commonly realised.

1.2.2 Cultural Change and Curriculum Lag

In 1939 Harold Benjamin published a short story entitled "The Sabre-tooth Curriculum".[1] It described a tribe that had learned to catch fish, club horses and scare saber-tooth tigers away using fire. These activities became accepted as the 'official' curriculum and were taught to the young. But when conditions changed and new skills were required, would-be innovators found that the traditional 'saber-tooth' curriculum had come to be regarded as authoritative, an "eternal verity". Thus an instrument of cultural adaptation had been transformed into one of regressive conservatism. While we cannot draw direct parallels, the satire achieves as certain resonance with our contemporary situation. For, as noted above, profound changes have occurred in our way of life, our understandings and our prospects which traditional curricula seem unable to encompass. Furthermore, the latter seem remarkably resistant to any thorough going innovation or change.

A fruitful way of interpreting this failure is to see it as a consequence of differences in rates of change within the educational system and those occurring outside it. Yet two caveats must be borne in mind. One is that curriculum activities are themselves cultural

processes and are thus embedded in the totality of culture. That is, curricula may be distinguished from culture, but they also remain part of it. Secondly, it is difficult to define appropriate indices of change within and outside the system. A great deal of 'change' has occurred in the context of post-war education (eg expansion, comprehensivisation, contraction), but this cannot be readily compared with the qualitatively different – and far more complex – changes which have occurred in the wider culture. (See below).

Evidently, further research is needed into the nature of these questions and in the development of an adequate data base.[2] However, the present survey has provided evidence of the obsolescence of secondary curricula, and we develop this view in the present chapter. Thus, while the concept of curriculum lag is less straightforward than it first appears, it usefully directs our attention to an important set of problems. These concern the extent to which curricula can embody aspects of contemporary culture, the nature of criteria for selecting these, and how well (or badly) the former can be said to prepare individuals for life in the future.

The view that school curricula somehow fail to maintain a basic 'congruence' with contemporary culture implies that schools can, and ought to, play a more active part in the mediation of social and cultural change. This clearly draws on reconstuctionalist views of the nature of education which have been referred to above. It will therefore be useful to remain alert to the implications of this view as this enquiry develops. While reconstructionalism is the educational ideology closest to the view being developed here, its drawbacks and the difficulty of putting it into practice should be kept in mind.[3]

The concept of curriculum lag is certainly not new. Various writers have explicitly or implicitly utilised it to point up what they felt were deficiencies in curriculum provision. Lawton suggests that "after the Reformation….the major achievements of the Renaissance were….almost completely ignored by the grammar schools". "Education", he adds, "was lagging behind the changes in society; curricular change was slower than cultural change". The result was that "literature in the English language, geography, painting, music, philosophy and science found no place in the grammar school curriculum".[4] Raymond Williams relates how the preoccupation of nineteenth century educators with the practical consequences of scientific discoveries caused them to neglect the wider implications, the "transformation of man's view of himself and of his world", with a consequent narrowing of the curriculum at that time.[5] Again, in the early decades of the present century, Whitehead condemned what he called "the fatal disconnection of subjects that kills the vitality of the modern curriculum", implying that a more integrated approach was long overdue.[6] More recently, Coombs concluded that "the outputs of educational systems are evidently ill-fitted, on the one hand, to the rapidly altering needs of national development, and to the similarly changing needs of individuals in changing societies".[7] Reynolds and Skilbeck view the curriculum as "a historically rooted, cumulative response to past perceptions of problems".[8] and Botkin (et al) go well beyond this with their notion of a "human gap",[9] (ie between world problems and human responses to these).

The lag metaphor is therefore well established. It expresses deeply felt concerns that the curriculum has consistently failed to embody aspects of culture and the wider world which people have felt were important. Inevitably, however, opinions vary over time and from person to person. What is clearly needed is a more systematic way of relating school curricula to regularities and changes in culture and the wider world that transcends partial, and perhaps biased, view to the greatest possible extent. This is not to suggest that 'objective' or 'value-free' knowledge is desirable or possible. It does imply that there is a need for a measure of consensus regarding essential curricular elements, - a consensus that is rooted in a sufficiently rich understanding of the world and of the prospects before it. Given a context of rapid and continuing change, this is perhaps the central curriculum problem. Attempts to come to grips with it via notions of the "problem-solving school" or "school-based curriculum development" have considerable potential, but are vitiated by many of the constraints alluded to above.[10] Another approach is by way of proposals for "common core curricula", but before we examine some of these it is necessary to look at the concepts of culture and cultural change.

A full discussion of either of the latter is beyond the scope of this study. However, Skilbeck offers a view of culture that is useful at this point. He regards it as "the system of customs, norms, values, beliefs, techniques, institutions and sets of meanings which characterise social living".[11] We might also add 'knowledge and technologies', which are centrally involved in change processes. In this view, culture is multi-dimensional and omnipresent. The symbolic aspects of culture such as history, tradition and language mediate our perception of reality every bit as much as our institutions and technical capabilities. Thus experience of the material world is never direct, but always culturally conditioned. As Ruth Benedict expressed it:

> no man ever looks at the world with pristine eyes. He sees it edited by a definite set of customs and institutions and ways of thinking….The life history of the individual is first and foremost an accommodation to the patterns and standards traditionally handed down in his community.[12]

This 'interior' quality of culture helps explain why cultural change raises difficulties for individuals and for institutions designed to transmit it to later generations. Changes are not merely external, but involve shifts in the concepts and categories by which 'reality' is constructed. To the extent that these are hidden or 'occluded' by uncritical or commonsense understandings, the potential for discontinuities between experience and 'reality' increase. As Charles Taylor puts it, rapid cultural change may rob us of certainty and leave us "caught in a web of meanings which have gone dead for us".[13] Thus, in the contemporary context, cultural change is not merely a matter of external departures from tradition (such as the nuclear family, greater mobility, the spread of television), but also of assumptions and meanings that have either become discredited or problematic (eg the Protestant work ethic, and economic growth). This issue is explored further in a later section.

It will be suggested below that changes that have occurred in recent decades (and which may be expected to continue in years to come) represent a major transition from one

culture to another; from a form of life that has been called 'industrial' to another that cannot be so named. If this interpretation is correct, then the secondary curriculum, deeply embedded as it appears to be in the concepts and meanings of the industrial era, and slow to change, faces severe problems of adaptation.

Attempts to specify core curricula must grapple with the problems of cultural change, pluralism and the continuing expansion of the knowledge base. Since no curriculum can encompass more than a small fraction of available cultural resources, the problem of selection has become increasingly urgent. Ideally, core curricula would attempt to specify a set of common learning experiences for all pupils, supplemented by a wide range of other options. In this way, so the theory goes, individual needs could be reconciled with the social need to transmit central and valued aspects of culture to the following generation. Regrettably however, and in contrast with other countries, agreement has not been reached in England and Wales on how such a core might be specified and implemented.[14] Becher and Maclure identify three basic areas of disagreement: how large the core should be, who should be responsible for defining it and what it should actually consist of.[15] They conclude that the "sheer relativism of curriculum-building, in a society which allows few absolutes….is likely to bring to an end the argument about a common core".[16] However, this view may be premature. While disagreements remain profound, a combination of the best of existing work with a properly articulated futures perspective holds out the possibility of a core based, in part, on future-oriented process skills and an up-dated culture map concept. (See section 4.2).

The major focus of debate has concerned attempts to specify criteria for the selection of content. Some of these draw on 'kinds' or 'groups' of disciplines felt to be essential.[17] Others claim to identify "modes of intellectual activity",[18] "forms of knowledge",[19] and "realms of meaning".[20] These 'knowledge-based' attempts to specify criteria for core curricula have been re-worked and extended (eg by White 1963 and Lawton 1975), but all may be criticised on the grounds that they endow <u>provisional</u> structures of knowledge and meaning with more authority and concreteness than they do, in fact, possess. Furthermore, by presenting knowledge as unproblematic and 'finished', they "lend a somewhat mystical credence to the institutions of education"[21] and perpetuate the artificial separation of knowledge into isolated disciplines.[22] Yet as Popper and others have pointed out, knowledge may never be complete or free of uncertainty. Existing knowledge structures should therefore be regarded as provisional, and subject to change in the light of new discoveries and developments.[23]

A variation has been provided by HMI who specify eight 'areas of experience' which they suggest could form a "checklist for curricular analysis and construction".[24] But it is unclear how the 'areas' model could be put to work in practice. In part this is because curriculum activities cannot be so neatly sub-divided. But also, as Halpin has noted, the model lacks a firm theoretical foundation and "does not seem to be one that would facilitate teachers conceiving common curriculum priorities in anything other than traditional subject-label terms".[25]

An alternative approach – that of understanding curricula as selections from culture, appears to be more promising. Among its early proponents were Smith, Stanley and Shores[26] who argued that since modern culture appeared to be subject to increasing stress, education should seek not merely to pass on elements of culture but seek to empower individuals to re-interpret them in the light of changing conditions. In their view, a core curriculum should address the 'fundamental universals' of culture and promote stability and continuity, but it would also be problem-oriented. Rather than simply utilising existing 'activities' and 'subjects', it would address "broad social problems and themes of social living".[27] The stress on promoting active and critical responses to inherited knowledge and culture, rather than an unreflective 'initiation' into existing forms, is certainly congruent with the approach taken here and seems more appropriate to an age in which some inherited beliefs and assumptions are breaking down. It holds out the possibility of continuous adjustment and adaptation to changing conditions, both at the individual and institutional levels. Indeed it is precisely here in the mediation of 'change' that a critical approach to futures may contribute to a re-thinking of curriculum problems, so this question is addressed below.

Reynolds and Skilbeck have extended this broadly reconstructionist approach via the notion of a cultural 'map' which would "incorporate a critical analysis of the main features and tendencies of modern culture".[28] Such a 'map' is not intended to be "a still-life picture from the past, but a set of features and signposts concerning the present and the future".[29] It would involve schools learning "to analyse, assess and think critically and creatively about their culture (and) look for ways of contributing to its future development".[30]

This approach to the formulation and construction of core curricula embodies a strong 'process' orientation, both in regard to the way it is organised around 'cultural themes' and in the rejection of "content to be assimilated and learned about", in favour of "processes and activities to be engaged in".[31] It is emphasised that "to consider curriculum construction in its cultural context is to build in procedures within the school for the appraisal of the need for change, and monitoring of the whole process of cultural mediation".[32]

From the viewpoint of this study, this model of curriculum development is useful and suggestive. Its emphasis on a critical approach to culture, on process skills, on sensitivity towards the future points us in the right direction. Indeed, a similar model is being successfully applied in Australia.[33] But it is also valuable at this point to be aware of inherent difficulties and of areas where further work is needed.

Chief among the problems faced by any such reconstructionalist approach is that teachers appear to have neither resources, skills, time nor social remit to put ideas into practice – particularly during a period of contraction and recession. It therefore risks becoming an unattainable ideal rather than a practical reality. Second, the model as it stands attempts to resolve possible discontinuities between curricula and the wider culture. It does not adequately address the problems that arise when constitutive elements of culture themselves become problematic, creating, in effect, a kind of 'double lag' between the

curriculum, elements of culture and structural changes in the wider world.[34] If the model is to be practicable it must attempt to address this issue. There are also two other areas that require further elaboration. The first of these concerns the concept of 'environmental monitoring' and how it could be operationalised for teachers and pupils (particularly in regard to trends, processes and changes at the global level – see below). The second concerns the pedagogical utilisation of concepts and principles arising from the field of futures study. This remains implicit in the model as presented, but it is the major focus of the remainder of this work.

The core curricula debate bears directly on this enquiry by raising issues that will be developed below. It also helps to confirm that curriculum theorists appear to have paid little attention to the pedagogical implications of a transition from industrial ways of life. This review suggests that the field is too pre-occupied with internal problems and debates with reactive adjustments to prevailing economic and political conditions, and with studying the past.[35] But it is necessary beware of over-simple conclusions. The loose structure of the curriculum field and the practical, uncertain nature of the problems with which it deals has given rise to numerous perspectives on curriculum change. While not all of these can be analysed, a review of the literature suggests that three major strands of thought may be distinguished. These are the liberal/humanist, the radical/marxist, and the critical/culturalist strands. A brief account of each will enrich our conception of the curriculum field, expose some of its limitations and further illustrate the growing disjuncture between secondary school curricula and the wider world. This will complete the survey and indicate why a future-focused approach to curriculum change bears further investigation.

The liberal/humanist strand in curriculum thinking derives in part from the ancient Classical Humanist tradition, with its heritage of great thinkers from Plato onward, and its valuation of 'high' or elite culture into which the 'cream' of succeeding generations are to be initiated. It is a tradition which "sets for the present and future generations a standard designed for them by their forefathers".[36] Education is associated with discipline, order and rationality. It "may be active, but it is always primarily an assimilative process: induction into institutions; acceptance of defined values and standards; initiation into clearly articulated modes of thought and action".[37] Liberal reformers are characteristically uninterested in radical change or thorough-going analysis and criticism of prevailing cultural values. Rather, their approach to change is 'piecemeal' and 'incremental', directed toward making the existing system function more efficiently and/or humanely. It is an approach which has received substantial support from contemporary philsophers,[38] but which tends to under-estimate the social implications of science and technology.[39]

Karier suggests that in American society the role of the liberal was essentially that of the knowledgeable expert dedicated to the survival of the system through growth". In education, he adds, "the liberal supported the creation of a mass system of schooling dedicated to filling the need of society for a citizen capable of adjusting to the necessities of an industrial system".[40] Even Dewey, he suggests, "was committed to flexible,

experimentally managed, orderly social change, which included a high degree of manipulation".[41] He adds,

> Liberals sought social change without conflict and violence by placing their faith in science and technology as a 'creator of human values' and turned to a mass education system that would impart these values to….children.[42]

In Britain it is arguable that the liberal/humanist tradition in education has been less repressive, but it certainly has been associated with 'high' culture, and elite standards and institutions.[43] Two of its main exponents have been Hirst and Peters, philosophers who have been not inaccurately described as "quietest celebrators of the-way-things-are".[44] In their 'Logic of Education' they deploy their analytical skills in an attempt to "criticise and clarify" what they concede are "second-order questions". But as Inglis points out, they "leave out of account questions as to whether things should be as they are, and further questions about how things became that way". Thus their view is ahistorical, "they deprive the educational world of its history, ideology, and social origins".[45]

Hirst's claim that pupils should be initiated into a tightly defined set of 'forms of knowledge', and Peters' essay on 'Education as Initiation' effectively subordinate individuals to reified knowledge structures, institutions and social interests which may be less than liberal. As Chanan and Gilchrist put it, academic traditions do not represent our sole intellectual resources. They are stores or traditions of particular specialised knowledge and criteria which are justified by the overall contribution they make to our picture of the world….There is no rational basis for saying that our overall picture is merely the sum of these specialisations….On the contrary (they) are abstractions from ordinary, common language and thought.[46]

The dependence of academic and scientific discourse upon 'common language and thought' is an issue that will arise again later. Here it only need be noted that this strand of curriculum theorising appears to rest on uncertain moral and epistemological ground, and certainly offers few, if any, guides for the future. Possibly its main positive contribution in this context is to emphasise the value of past achievements and the necessity of cultural continuity. As will become clear, these are factors which some futurists neglect in their pursuit of novelty and change, whereas what is required is a more considered balance between tradition and continuity on the one hand, and novelty and change on the other.

A second major strand in curriculum thinking is, in some ways, the polar opposite of the first, being concerned with radical, or revolutionary change, and the rejection of much of what liberal humanists would consider valuable and necessary. Two distinct traditions may be distinguished here, one drawing on the work of Marx, the other more recent and associated primarily with the world of Illich.

Marxist approaches to the curriculum draw on a sophisticated tradition of enquiry, analysis and criticism that cannot be summarised here. Neither is it possible to outline the contributions of major theorists since this would, in itself, be a major undertaking. All

that can be attempted is a brief overview of the Marxist perspective and an indication of some of its major drawbacks and contributions.

The primary feature of the Marxist tradition is that it offers a critique of the social, cultural and economic relations of capitalist societies. It attempts to explain the unequal distribution of power, wealth and prestige and so on by a theory of class conflict in which the 'lower classes are systematically prevented by 'ruling interests' from ownership of the means of production, and from obtaining and enjoying the full fruits of their labour. Its image of an 'ideal society centres upon common ownership of the means of production and equitable distribution of power and wealth. Gleeson summarises the way Marxists view the education system in a capitalist society:

> (it) is seen to have two main objectives: the reproduction of labour power, and the reproduction of the social relationships which facilitate the translation of labour power into profits. Thus the educational system functions to legitimate rather than transcend economic inequality and the hierarchical division of labour.[47]

Furthermore, while the actual processes of domination and repression are not wholly clear and subject to debate, it is held that the educational system actively accommodates itself to capitalist interests. According to Stuart Hall, "education is not simply shaped in a general way by the imperatives, arrangements and logic of the capitalist system….(it)…. is specifically articulated within this system….in definite ways".[48]

In this view, the major task of education is to prepare individuals for pre-given roles, tasks and positions in the industrial and economic hierarchy that requires an 'educated' but docile workforce, and a population of passive consumers. It is therefore claimed that the selection procedures within schools of testing, grading, streaming, tracking, and the acquisition of qualifications serve to 'process' pupils for the labour market and socialise them into an unquestioning acceptance of the system. Education is therefore seen to be centrally concerned with social control and the maintenance of cultural hegemony. In this situation, teachers readily become the passive 'servants of power'.[49]

Such a brief account risks caricature of what is certainly a very important and intellectually demanding field. But it is sufficient for present purposes and allows some useful insights, as well as drawbacks, of Marxist approaches to curriculum to be identified. In the first place, by suggesting that socioeconomic structures and relationships could be radically different from existing forms, it helps to demystify the 'givenness' of these, and raises the possibility that other forms could arise. In so doing it contributes to the problematisation of received, taken-for-granted understandings and concepts, and thus enhances the possibilities of change and the emergence of alternative concepts and understandings. The Marxist tradition thus stands in opposition to the liberal/humanist tradition and could be regarded as a necessary 'corrective' or balance in relation to it. Secondly, it provides a method of analysis and a cluster of concepts which sensitise us to the potential for (or actuality of) repression, domination and 'irrationality' in particular contexts, and alerts us to structural phenomena that might otherwise escape our attention (eg correlations between social class and educational achievement).[50]

Thirdly, by attempting to explore alternative conceptions of social and economic life, it underwrites the need to adopt a critical and reflective approach to established institutions – such as schools – and our relationships with them. Finally, it provides a penetrating critique of 'gradualist' approaches to curriculum reforms which share a belief in the possibility of piecemeal social reform, in the amelioration of local conditions without any overall social upheaval and in the possibility of remedying the symptoms of what is seen as social malaise, without tackling its underlying causes.[51]

It is unnecessary to accept Marxist notions of what these 'underlying causes' might be in order to recognise that incremental models of social and educational change are by no means the only, or even necessarily the best, models available to us. Indeed, it is necessary to turn a critical eye upon the Marxist perspective on curriculum in order to assess its limitations.

Many educational writers have expressed misgivings about aspects of Marxist theory, while others continue to adapt and re-interpret many of its central concerns.[52] In terms of the curriculum, detailed critiques have been provided by Gleeson (1978), who argues that the broad, long-term perspective of Marxism ignores the immediate problems and contradictions that teachers face; William Taylor (1978) who detects many logical and epistemological flaws, not least of which is the 'overdetermining' and unnecessarily assertive nature of much Marxist theory; Musgrove (1979) who suggests that 'hegemony' is associated less with the 'capitalist bourgeoisie' than with what he calls 'gentry culture; the former having suffered "major reverses in education"; and, perhaps most importantly, Bowers (1978).

Bowers suggests that Marxist theory is vitiated by its reliance on context-free metaphors such as 'class', 'class consciousness', 'exploitation' and 'capitalism' which, in his view obscure the 'deep structure' of its own analysis. More importantly, however, he considers the Marxist critique of schooling to be "increasingly outmoded by the emergence of a technological culture".[53] In his view, the traditional Marxist pre-occupation with class conflict harks back to the last century and has been superseded by the spread of "technological consciousness", the most important characteristic of which "relates to the nature and pervasiveness of purposive rational thought."[54] He points out that "communist societies have not evolved cultural alternatives to the de-humanising effects of technology and bureaucracy",[55] and that Marxism itself

> is predicated on the same assumptions about unlimited growth, progress, the neutrality of science and technology, and the supremacy of purposive rational thought that are embraced by most people living in Western Bureaucracies.[56]

This is a crucially important point, that will be explored more fully below. It directs our attention away from the major concerns of curriculum theorists and their Marxist critics toward <u>questions about the nature of assumptions embedded in the 'technical/industrial world view'</u>. Indeed, it may be no exaggeration to suggest that the prospects for curriculum renewal depend to no small extent upon the clarity with which such questions may be articulated and understood within the educational community.

The other major tradition of radical thought of relevance here is represented by the de-schoolers. These achieved prominence during the 1960's and early 1970's, and reached a climax in the writings of Ivan Illich. During this period, a series of publications (including Goodman 1962, Postman and Weingartner 1969, Reimer 1971 and Illich 1971) proclaimed the view that 'school is dead'. It had become "the universal church of technological society, incorporating and transmitting its ideology, shaping men's minds to accept this….and conferring social status in proportion to its acceptance".[57] Another declared that "what passes for a curriculum in today's schools is little else but a strategy of distraction….largely designed to keep students from knowing themselves and their environment".[58] Illich himself extended the church metaphor and declared that:

> The school system today performs the threefold function common to powerful churches throughout history. It is simultaneously the repository of society's myth, the institutionalisation of that myth's contradictions and the locus of the ritual which reproduces and veils the disparities between myth and reality….Only disenchantment with, and detachment from, that central social ritual can bring about radical change.[59]

For Illich, schools are the 'master institutions' which serve to perpetuate an unjust and alienated society largely by creating demands that other, equally repressive, institutions are designed to meet. His major proposals concern the establishment of voucher systems, skill exchanges and voluntary 'learning webs' via which the total 'learning resources' of society could be made available to all who wanted them.[60] In this way the institutional monopoly of schools over education would be broken.

There are many reasons why the prescriptions and 'alternatives' offered by the de-schoolers failed to thrive. Certainly they appeared unable to stand up to the criticism they attracted. For example, Barrow (1978) showed how de-schoolers over-rated the influence of schools, did not possess "an adequate conception of autonomous and rational thinking",[61] and failed to comprehend that the enactment of their proposals would, in all probability, "increase social inequality and divisiveness".[62] Again, Gintis criticised Illich for not being radical enough. – That is, for concentrating on the consumption side of the equation and neglecting "the nexus of social relations in production".[63] Finally Hurn rightly suggests that "we should not confuse a wish that the community should again become an organic and solidary institution with the assumption that it is already resurrected and ready to take on its traditional responsibilities of educating the young".[64] He concludes that "we are stuck with schools….they cannot transform the wider society (but) we have hardly begun to exhaust (their) possibilities".[65]

So the wave of interest in the idea of de-schooling has subsided – partly as a result of inherent deficiencies, partly as a result of criticism, partly as a consequence of continuing widespread support for schools, despite their evident failings. Indeed, so long as schools are regarded as primary agents of socialisation, it is doubtful if any large-scale alternative could threaten their position. However, it is unlikely that the idea of de-schooling will vanish. As new information technologies become increasingly available and familiar

some of the functions of schooling may be transferred to other contexts, and some measure of de-schooling may then take place. This question is considered further in the final section.

The third strand of curriculum thinking is less easily identified, but perhaps the most important for this study. This group of writers includes the reconstructionists (already referred to above) but most do not appear to belong to any particular 'school' or tradition. They do, however, share a number of characteristics. They tend to adopt a more reflexive and critical stance, recognising the problematic status of taken-for-granted assumptions, and some of the developing tensions inherent in the breakdown of constitutive rules, values, beliefs and concepts of technical/industrial society. Thus their general approach tends to be meta-theoretical and sophisticated, typically drawing on a wide range of intellectual tools and resources. They are also distinguishable from other writers in that their approach to curriculum problems tends to be conditioned by an appreciation of changes in culture and in the wider world. Many are therefore alert to the ways that curricula have become dissociated from the latter, and are concerned to broaden the focus of the field. As Westbury puts it, "our traditional focus represents an attack on the surface structures of the educational problems of the school … (but)…forces outside the school are now requiring us to address problems of deep structure…."[66] (Emphasis in original).

It is not our purpose to review such problems at this point. However, it is useful to take a representative issue that illustrates structural changes and the inadequacy of official responses. One such issue is the changing nature, and declining availability, of regular paid employment. There is now plentiful evidence that the fastest-growing section of the unemployed are school-leavers, and that this group will expand progressively as the level of unemployment continues to rise.[67]

The continued substitution of machinery for labour – particularly via the ubiquitous microprocessor – along with other economic changes, makes it virtually certain that this trend will continue. Indeed, the OECD estimate of three million unemployed in Britain by the middle of 1982 has been superseded.[68] Looking further into the future even higher levels may be anticipated. For example, Stonier suggests that within 30 years "no more than ten per cent of the labour force (will be) required to produce all of the food, housing, clothes, furniture that we need for modern civilisation."[69] Hughes sees in this "a crisis of a severity we have not recognised", and, significantly, he adds, "it can't be solved within the old categories".[70]

Woods has examined the problem from within the classroom context, and his conclusions are suggestive. He states that:

> one of the biggest paradoxes about school….(is) that it is often held up to be in the forefront of knowledge, in its efforts to develop skills and abilities and to open minds, yet (it) is one of the biggest victims of cultural lag in this society. Teachers go on preaching the virtues of the Protestant Work Ethic, with its emphasis on ambition, hard work, and deferred gratification, but the structural parameters of society no longer make these viable propositions for most people. 'Work' has

> undergone a metamorphosis, little any longer involving the totality of the person. It is by and large a nagging necessity to which people have adapted over the years….(by) participating in work cultures….No amount of teacher advice and persuasion can scratch the surface of this massive influence. They instinctively know this, and their exhortations seem to have an unreal quality.[71]

This passage strikingly conveys the 'embeddedness' of the curriculum in a web of meanings that no longer reflect contemporary experience. But the pupils are not the only ones to suffer. As Woods continues, teachers too:

> are subject to the same structural forces. (Their) 'work' is not exempt from modernising forces which have rendered it an intermixture of pedagogy, professionalism and survival. They are thus in the curious position of sponsoring an ideology they neither follow themselves nor is any longer appropriate for the structural situation of their charges. It persists because it is associated with the <u>self-perpetuating practices and beliefs</u> that have been mastered by the teacher in his defence against the exingencies of the job which themselves have become standardised.[72] (My emphasis).

The writer concludes that "school work is therefore unreal for many pupils, and they duly transform it into something….they can live with….but work of the old order has lost its structural supports".[73]

The recognition that teachers as well as pupils are caught up in broad processes of macro-change is a crucial one. It helps account for some of the stresses now being experienced within the system and indicates the direction in which solutions might be sought. But before developing this point, it should be emphasised that <u>the web of meanings which is breaking down ramifies throughout the epistemological foundations of industrial culture</u>. It is not simply that the meaning of work and leisure has changed. On the contrary, there is evidence that the phenomenon is universal. Many other aspects of industrial culture – values, ideologies, belief systems and symbols – are under stress, and the confusion is evident in education, as in other areas. For example, commenting on the issues of 'power and participation' in educational decision-making, Bogdanor finds evidence to suggest that "social and economic developments have led to a confusion of roles, and to a situation in which many of those whose task it is to manage the system no longer know what is expected of them." He adds, "it is probable that they will attempt to muddle on with a structure which was developed for a form of society that has now passed away".[74] Again, in the context of growing ecological difficulties, Bowers suggest that:

> the concepts and vocabulary necessary for thinking reflexively about our collective cultural assumptions are omitted from the debate over education because the participants are operating within an ideology formed before there was an awareness of the ecological crisis.[75]

Such examples could be extended indefinitely, although they are not common in the curriculum literature. They underline the profound nature of the present transition as

growth-oriented, Western industrial cultures come up against certain crucial limits.[76] Some of these will be referred to below. Here it may be noted that much of the confusion and sense of crisis arising from the dislocations associated with rapid change, is, in fact, avoidable. Freire describes this period of turbulence and indicates a possible response. He writes,

> The time of….transition constitutes an historical-cultural 'tidal wave'. Contradictions increase between the ways of being, understanding, behaving and valuing which belong to yesterday and other ways of perceiving and valuing which announce the future. As the contradictions deepen, the 'tidal wave' becomes stronger….This shock between a yesterday which is losing relevance but still seeking to survive, and a tomorrow which is gaining substance, characterises the phase of transition as a time of announcement and a time of decision. Only, however, to the degree that the choices result from a critical perception of the contradictions are they real and capable of being transformed into action.[77] (Emphasis in original).

Here Freire provides two clues that may assist in the resolution of what this study has termed 'the central curriculum problem' (ie how to achieve a measure of consensus regarding criteria for the selection of 'essential' curriculum elements). Firstly, he confirms that during a period of rapid change it is necessary to engage both with 'yesterday' and 'tomorrow', to learn, in other words, to mediate consciously between past and future. (This is one area in which reconstructionist approaches can be further elaborated). Secondly, he is emphatic that a critical perception of emerging contradictions is a prerequisite of any effective response. With this and the foregoing in mind, a more satisfactory explanation can be advanced for the relative failure of curriculum reform, setting the scene, as it were, for the rest of this work.

Secondary school curricula fail to 'engage with' the contemporary world in part because of the constraints alluded to above: the distinctive combination of pressures, lack of time, inadequate training and re-training facilities, economic cutbacks and so on. Consequently, far from developing a "flexible exchange system with (the) environment", many schools appear to have turned inward. As Reynolds and Skilbeck note, "the school curriculum can very easily become a form of cultural inwardness, of indwelling for its acolytes, the teachers, and its neophytes, the pupils."[78] While much has been made, for example, of developing links between schools and industry or the wider community, the dominant trend appears to be a growing dissociation of teachers and curricula from the structural realities of a changing society. This makes it difficult, if not impossible, to attain a critical purchase on emerging problems, contradictions and shifts of meaning. Hence the cycle could be self-perpetuating. Each shift away from the familiar and the known appears to prompt protective responses that, in turn, obstruct the re-interpretation of understandings and the re-alignment of practices.[79]

It is, of course, possible to find examples of innovative and forward-looking work.[80] But attempts to respond constructively to a 'world of change' have been vitiated not only by material constraints but also by the absence of a coherent and widely-accepted rationale

for systematic curriculum renewal and, perhaps of equal importance, by the reactive, backward-looking character of much educational research, discourse and debate.[81] As was evident above, neither of the two major strands of educational thinking are anticipatory in character, and they provide little basis for understanding the nature of the present cultural transition. Again, as Lawton notes, the major partners in the system – HMIs and civil servants in particular – tend to share "similar social and educational backgrounds, tend to make the same kind of assumptions, and tend to possess similar beliefs, ideologies and obsolete theories." He adds that it therefore appears likely that "DES policy….is the result of that kind of 'common-sense' set of shared assumptions rather than a carefully formulated theoretical viewpoint."[82] This is borne out in official documents; for example, by frequent bland references to "preparation for working life",[83] uncritical acceptance of the nature and direction of technological change,[84] and the oft-expressed belief that "ours is an industrial society".[85]

While there is increasing evidence of official concern for the external dimensions of social problems – such as teenage unemployment – there is no evidence of attempts to probe more deeply into the nature of 'industrial era' assumptions or shifts of meaning and value.[86] Yet if culture is much more than the sum of its external manifestations, this is precisely where work is urgently needed.[87] Thus, official responses tend to be reactive (rather than anticipatory), and schools are urged to orient their work with society 'as it is', or even as it was.[88] It follows that many difficulties – including that of curriculum lag – may in substantial part be traced to the lack of prospective, long-term approaches to curriculum problems. This is deeply ironic since the very attempt to prepare pupils for 'future living' means that schools stand on the brink of past and future, and should therefore have an interest in both.

Finally, it is evident from this review that the overall debate about the curriculum has, in large part, been too narrowly focused on the intricacies of the school system and on abstractions derived from it. To some extent this is understandable – many phenomena remain problematic (eg the relations between 'education and society') and ill-understood (eg the measurement of teacher effectiveness, classroom interactions etc.). Yet this is no reason to neglect wider issues which themselves bear upon curriculum problems. The fact that curriculum deliberation, debate, research and literature mirror the 'inwardness' of the classroom rather than the dynamically evolving world beyond it suggests that the curriculum field as presently constituted is poorly equipped to face the problems and opportunities that lie ahead, or to help the next generation to face them. In what follows the present study attempts to show how this might be remedied.

The following chapters look beyond the usual boundaries of the curriculum field to wider contexts and longer-term considerations. They turn first to the global futures debate which exemplifies some of the points made above and provides an overview of major issues and dimensions of change which could inform curriculum deliberation at all levels. They next discuss aspects of the future and consider how it might be 'studied'. A critical review of the futures field highlights certain concepts and themes that are later re-formulated in an outline of critical futures studies. Following a look at the treatment of

the future in two cultural contexts, the study is completed by the application of critical futures ideas and concepts to the problem of curriculum renewal.

Section Two: Some Curriculum Implications of the World Futures Debate

Mankind is involved in an irreversible process of progressive and fundamental transformation of world relationships that will go on for perhaps the next 50 years or so. ….Maintenance of the status quo is a fallacy because of the weight of the processes at work and the present unsatisfactory functioning of the world economy.

- O.E.C.D., Facing the Future, 1979.

The British Industrial Revolution has turned the whole world upside down, and Nature is now presenting the bill to mankind.

- Arnold Toynbee, Observer, 1972.

2.1. The Growth of Futures Research in the Twentieth Century

The systematic study of possible futures is a distinctively modern phenomenon, although its origins may be found in earlier periods. Shamanic rites, the consultation of oracles, prophetic discourses and ancient stories of imagination all draw on the same roots and testify to the existence within human beings of a need to reach out and grasp some knowledge, however tentative or uncertain, of future possibilities. In many cultures such impulses were channelled solely into religious or ceremonial activities, but in others they led in a rather different direction. In fact, the field of Future Studies owes its existence to an accumulation of ideas from many different sources and historical periods: to the Greeks who reduced the stature of the mythic gods and embraced a more intellectual and rational vision of man's place in the universe; to the Judaic traditions which emphasised a linear view of time and the view that individual acts (ie conversion and redemption) could lead to future improvement; to the Renaissance with its new understanding of natural laws and hence enhanced ability to predict; to the outpouring of intellectual rationality represented by thinkers and writers such as More, Bacon and Descartes; to the Enlightenment and of course to the transformations initiated by the Industrial Revolution itself.[1]

By the Twentieth Century, a series of profound social, economic, technical and political changes were well under way and a materially improved future for everyone seemed entirely possible. The optimism engendered by this prospect is evident in the novels of Jules Verne and the younger Wells, among others: technology and the rational organisation of human affairs would, it was believed, make Utopia possible. However, even before these hopes were buried in the mud of Flanders, a new generation of "prophets" – Saint Simon, Marx, Weber and Comte to name but four, raised dissenting voices. They argued that the new-found powers of measurement, control and manipulation which underlay the industrial system could, because of the uneven distribution of power and authority, as readily lead to the further enslavement of humankind as to any fundamental improvement. While such fears have not been fully realised, it is clear that even before the dawn of the Twentieth Century there existed a deep ambivalence about the nature of progress, and more particularly, about the ownership and control of science and technology. This ambivalence has persisted to the present day and is reflected in many of the contemporary debates about the future. At the beginning of the century, however, unqualified optimism was still the dominant mood. Both Europe and America were prosperous and at peace. Britain and France both headed far-flung empires and the "Belle Epoque" seemed well established. Industry was booming and new modes of transport and communications had stimulated trade development. By now too, geologists had begun to unravel the mysteries of the fossil record and were extending the span of human knowledge into 'deep time' - the hitherto unknown distant past. Similarly, the theory of evolution portrayed human life as the outcome of a series of ancient transformations.

Undoubtedly, these radically new perspectives and capacities altered people's sense of time and their attitudes to the future. As McHale puts it, "as we entered the 20th century,

the human condition seemed to be capable of unprecedented expansion – in knowledge of the past, control over the present and in optimism regarding the future,"[2] The latter was beginning to be regarded less as something which had to be fatalistically accepted than as a field of opportunity which men were free to explore. (Indeed writers of Utopias had been aware of the possibility for a very long time.)

It was HG Wells who, in a 1902 lecture, responded to these ideas and to the prevailing mood by explicitly calling for a "science of the future". Shrewdly utilising the new sense of the past derived from Geology, he rhetorically asked his listeners:

> is it really, after all, such an extravagant and hopeless thing to suggest that, by seeking operating causes instead of fossils and by criticising them persistently and thoroughly as the geological record has been criticised, it may be possible to throw a searchlight of inference forward instead of backward and to attain to a knowledge of coming things as clear, as universally convincing and infinitely more important to mankind than the clear vision of the past that geology has opened to us during the nineteenth century?[3]

Wells called for a "systematic exploration of the future" and argued that if "the laws of social and political development" received the same concentrated attention as that accorded to the physical sciences, then steady and continuous improvement in the human condition could be expected.[4]

Three things in particular are notable about this. The first is that the future is explicitly portrayed as being inherently more important than the past. The latter may be explored and re-interpreted but it is toward the former that all human intentions and hopes are directed. This is a theme which, as will become clear, was later to be elaborated by Jouvenel, among others. Second, we may note the assumption that there <u>are</u> "laws of social and political development" that may be discovered and used to predict. Here is an expression of crude Historicism that we no longer find acceptable. Third, the mood of optimism is plain. "We can foresee growing knowledge, growing order, and presently a deliberate improvement of the blood and character of the race…All this world is heavy with the promise of greater things" Wells declared.[5]

Such unqualified optimism is no longer possible in the light of the events of the Twentieth Century. Indeed, it was only a few years after these sentiments were expressed that the First World War dramatically demonstrated that science and technology and rational organisation could as easily work against man as for him. The result was that "progress came to be widely viewed as a snare and a delusion; the same science and technology that once seemed to provide only benefits now threatened to destroy humanity".[6] The confidence of the pre-war period was shattered. Human history was no longer seen as a process of steady and continuous improvement, it was now "more a race between education and catastrophe",[7] as Wells put it. Here is one of the earliest and most forceful expressions of the view that if 'progress' can no longer be assumed to take place more or less automatically, then 'education' has the power to bring it about.

Even before World War 1, the Wellsian vision of a world transformed by science and technology (expressed most clearly in "A Modern Utopia", 1909) had been satirised by E.M. Forster in a short, but as it later proved, a very influential story called "The Machine Stops". Forster depicted a distant future in which humankind had become so abjectly dependent on technology that it had deteriorated both physically and mentally. When the inevitable breakdown occurs, only the small minority which had refused to embrace 'the machine' survive to begin anew. It is a protest both against centralised planning and the domination of technology over life. While clearly a satire, and not to be interpreted too literally, the story undoubtedly expressed a fear that provided the main impulse for a whole new branch of dystopian literature. Indeed, it is no exaggeration to say that this fear or suspicion regarding the growing dominance of technology, coupled with a sense of loss of control, has become one of the major and continuing themes of the Twentieth Century. It is one that will be reconsidered in the context of curriculum provision.

"The Machine Stops" was followed in 1924 by Zamyatin's novel "We", an even darker parody of Wellsian optimism. In the light of the experience of the Russian Revolution, Zamyatin depicts a totalitarian state founded on technology and centralised planning, and from which no escape, other than death, is possible. This was, in turn, followed in 1932 by Huxley's "Brave New World", and later by Orwell's "1984". These are worth noting because the dystopian vision clearly expressed the growing mood of pessimism, and served to dramatise and explore some of the ambiguous implications of advancing knowledge. No longer could it be assumed that advances in technical skill and the enhancement of human welfare were synonymous. This realisation continues to stimulate a great deal of contemporary discussion and research. Indeed, it lies at the heart of the futurist enterprise.

Meanwhile, developments were taking place in other areas. Governments were finding that complex economies undergoing modernisation were becoming too unwieldy, too prone to dislocations (like the famous Wall Street crash) to be run on a day-to-day, or even on a week-to-week basis. The Soviet Union initiated its first Five Year Plans in the 1920s and, by the early 1930's, the U.S. government of necessity became more intimately involved in the economic affairs of the nation, despite profound entrepreneurial dislike of 'intervention'. Since this time virtually all governments have found it necessary to establish some kind of planning machinery and to make use of a growing number of planners and forecasters. Apart from the economy, their expertise has increasingly been applied to such areas as education, land use and technological innovation.

The Second World War gave a new impetus to planning and forecasting. Large numbers of men, and, increasingly, their sophisticated weapon systems, had to be readied and transported to strategic positions in a coordinated way. Such large scale and complex operations required that assumptions be made about possible future courses of events and this, coupled with the development of computers, led in turn to developments in war gaming and scenario analysis, - two techniques that are still in use today. Following the war it was inevitable that such techniques would be retained as an aid to military planning. Indeed, Cornish states that "the main impetus behind the study of the future in the United States following World War Two was the demand for national security."[8]

The dropping of the first nuclear bombs on Japanese cities in 1945 affected the development of interest in 'futures' in at least two important ways. First, it dramatically underlined the conclusions some had drawn from the First World War, namely, that far from creating an ideal future, technology now had the power to end civilisation. For perhaps the first time in history it became widely realised that unless new ways were found to control and direct these awesome new powers, then humankind might not even have much of a future to look forward to. – And this at a time when developments in other areas (notably medicine, agriculture and communications) held out the prospect of an eventual end to the scourges that had afflicted the race throughout its history. This contrast between destructive power and liberating potential altered the whole aspect of the future. No longer could it simply be left to "take care of itself". Rather, a varied field of possibilities had opened up which invited, indeed required, the exercise of conscious human choice. The question then arose, and it is a central one, as to who would make the necessary choices, and indeed, how these should be implemented. It is fair to say that it remains an open question still.

A second major consequence of the existence and use of nuclear weapons was the introduction of new elements of uncertainty and hazard into the strategic relationships between the superpowers. No longer were national territories protected from attack by time and distance. Military preparedness dictated systematic analysis of the implications of existing and possible future military hardware, and also of the responses that could be envisaged to meet those potential threats. These considerations led directly to the first major piece of research on future technological development, Von Karman's "Towards New Horizons", (USA 1947) and to the establishment of the first future-oriented research institute (or "think tank"), the RAND project (an acronym for "Research And Development") in 1948. Both were initially conceived to serve explicitly military purposes. However the new techniques for probing into the future were rapidly taken up and applied to other ends. In his book "War Gaming", Wilson describes a little of this process. He writes:

> the uncertainties caused by the Bomb and the Cold War gave rise to entirely new types of games. They…were demanded not only for instructing commanders and testing plans, but also for generating ideas, acquiring data, gaining insights into the future, and assisting all kinds of research. Nor was the military machine the only user. Any Department concerned with national security had a potential interest in war games, whether as a means of preparing for war or as a way of solving crises. Academic institutions were also deeply involved, because they alone had the skills required to invent the more sophisticated kind of game. Finally the business world, which had already been ahead of the military in introducing operational research, had an interest in games for the study of economic competition; and some games were of use to both. [9]

Gaming is but one of the techniques evolved to probe into possible futures, but it is evident from this example that other powerful groups, besides the military, became interested in the new discipline. Indeed it is probably significant that two years after its

beginning, the fledgling RAND project obtained the financial backing of the Ford Foundation and became a corporation in its own right with interests, not merely in military and strategic studies, but also in social and economic policy. This early identification of futures research with government, the military and large business organisations, has, as will be seen, had some influence upon the development of the field. So successful was the RAND Corporation that other similar bodies, notably the System Development Corporation and the Hudson Institute, were soon established in the USA. These were followed, in 1966, by the formation of the World Future Society, and in 1968 by the Institute For the Future. Besides a steady stream of specialist studies and reports on subjects as diverse as housing, plastics and communications, a number of works intended for a wider audience were published. Possibly the most important of these was Kahn and Weiner's "The Year 2000" (1967), which attempted to present a general picture of the prospects for the world by that date. It was followed by a stream of works that have deluged the interested public with a variety of analyses of past trends, interpretations of future prospects and prescriptions for present action.

Of course, the new interest in 'futures' was not limited to the USA. In Europe, the idea of prospective analysis had been developed by Gaston Berger in France and later given concrete expression in the "Futuribles" project, headed by Jouvenel. This sought the views of scholars regarding possible future developments, with particular emphasis on the theme of politics. "Futuribles" was established in 1960 and, interestingly enough, was also funded by the Ford Foundation. It led to a number of international conferences, and was followed, in 1964, by the publication of Jouvenel's now classic work "The Art of Conjecture". The book marked a significant new stage in the development of a futures perspective by setting out a coherent methodology and epistemology for the field. He took the Wellsian insight regarding the inherent importance of the future and developed it into a rationale for the conduct of future studies. Referring back to Cicero, he used the terms "facta" and "futura" to distinguish between that which is accomplished, and thus lies outside of the sphere of human action, and that which is yet to come. He showed that while most knowledge arises from the past, the only practically useful knowledge relates to the future, which is the focus of all our actions. Yet since, strictly speaking, there are no future facts, he argued that the study of the future should be considered more of an art than a science.

We now understand more clearly that thinking about the future involves both "art" and "science", (ie intuition and analysis), but Jouvenel's contribution was significant. As Cornish has noted, he "became….a bridge between several different aspects of Futurism. His writings provided a meeting ground for the science-oriented Futurists (mainly American)….and the more philosophic and humanistic Futurists, (mainly European)".[10] Jouvenel's work was important in stimulating other workers and other projects including the "Commission on the Year 2,000", sponsored by the American Academy of Arts and Sciences. In Italy, Aurelio Peccei brought together an international group of experts to form the now-famous Club of Rome, and this led to the production of a series of well publicised reports, including "Limits to Growth" (discussed below). Elsewhere, the German writer Robert Jungk founded a body called "Mankind 2,000", and the European Cultural Foundation assembled a 200 strong team to undertake detailed research for "Plan

Europe 2,000". By the 1970's both the United Nations and the OECD had commissioned number of research studies on aspects of the future, and Sweden had established its Secretariat for Future Studies. In Britain, however, official interest in the field was less discernible, and remains so to this day.

In the years following the Second World War, Britain was faced with the problems of reconstruction, declining primary industries, decaying cities and a chaotic pattern of urban sprawl. So perhaps it is understandable that such interest in the future as existed, tended to be expressed in terms of land use and economic planning. Indeed, the years 1945 to 1952 saw the publication of a whole series of acts concerning the distribution of industry, the new towns, national parks and the creation of new planning machinery. In retrospect it seems that the imaginative energies of the nation were fully stretched to deal with the postwar situation. And although Britain possessed nuclear weapons, these were not numerous enough, or of sufficient strategic importance to warrant the kind of dedicated application to defence-related futures research that took place in the USA. There was also the question of resources. Although technically on the winning side, the war had exhausted the country and such wealth as there was in the public purse was understandably devoted to more immediate needs.

What is harder to understand is why organised interest in futures research has advanced so slowly in more recent years. To be sure, there do exist a small number of research units, both in the service of the government (eg the Central Policy Research Staff) and the academic community (eg the Science Policy Research Unit), which sometimes undertake futures-related work. There are also a number of economic research groups which attempt to predict short term changes in economic parameters, and there is evidence that some commercial interest bring technological forecasting into the ambit of their planning procedures.[11] Occasionally a book appears which attempts to take a wider view of Britain's future, but these tend to be fairly specialised and do not appear to stimulate much general interest.[12] Indeed, there seems to be nothing in Britain to compare with Futuribles or the RAND Corporation. The chapter of the World Future Society that was established in London in the early 1970's no longer exists.

From the above description it might be concluded that Britain lags a long way behind other Western nations in terms of its investment in futures research, and in <u>institutional</u> terms this is probably true. Indeed, the lack of institutional support helps to explain why so little has been achieved in this area vis-à-vis the school curriculum. But this picture is incomplete. The debate about alternative futures, while heavily influenced by large organisations and prestigious studies and reports, is by no means limited to them. It is true that, by virtue of the resources these command and their proximity to the seats of power, they have tended to dominate and structure the debate. But many of the more innovative ideas and developments have arisen from the work of countless individuals and groups who have often lacked these seeming advantages.

There are at least three reasons why it is impossible to do more than sketch in some of the main threads of this 'informal' side to the futures debate. To begin with, it is a complex story involving writers, scientists, academics and activists of many kinds from many

countries. Secondly, the issues involved bear upon so many subjects and disciplines that clear boundaries are very difficult to establish. Thirdly, to do the subject justice would require a separate study, so space dictates that this study keeps to the essentials.

The origins of this informal debate are various. To some extent they arise from a re-evaluation of some of the characteristics of pre-industrial societies: their apparent stability, their religious beliefs, their attitudes to the environment and so on. Another influence is provided by the Romantic and early Anarchist traditions represented by writers such as Ruskin, Morris, Kropotkin and, more recently, Roszak. Marx and the early sociologists of industrialism have already been mentioned. Contemporary influences include Eastern religious views, speculative literature, the environmental movement, the rise of radical science and the sociology of knowledge, and last but not least Western traditions of academic and publishing freedom which facilitate the free exchange of ideas.

What is it, one may ask, that brings together such an eclectic and wide-ranging collection of influences, and how do they contribute to the futures debate? The answer is deceptively simple: all contain or express implicit or explicit criticisms of aspects of Western industrial culture. They point, for example, to the way that Western people have, on the whole, become alienated from the earth which supports them, to the waste and destruction associated with the expansion of the industrial system and to alternative values, ideas and ideologies regarding what may be considered ‘desirable’, ‘good’ or ‘progressive’. The major importance of the so-called ‘alternatives’ movement to the futures debate is that by bringing such a wealth of cultural and individual resources to bear on contemporary issues (and future prospects), it challenges prevailing conceptions of ‘progress’, and rescues the debate from the ethnocentricity and technological determinism into which it might otherwise easily fall. By challenging cultural assumptions and paradigms it also helps shift discussion towards the metatheoretical level and thus serves to link it with other approaches, - critical theory and hermeneutics for example. (See below, section 3.2).

If it is recalled that the major studies tend to have been carried out by prestigious research organisations, government bodies and inter-governmental groups such as the OECD, then another reason why the work of independent critics may be considered important can be suggested. If all futures research were carried out only by official bodies then we could be sure that the view of the future generated by them would to some extent reflect, and be limited by, existing interests and power groups. (Indeed, the Club of Rome has been criticised for just this reason). Thus independent, informal and perhaps non-institutional criticism and research acts as a corrective and generates images of the future and policy options that tend, on the whole, to be often overlooked in more ‘official’ studies. If this were not the case then established groups would have the unimpeded freedom to define futures that could be perceived as virtually inevitable, and thus self-fulfilling. Given the dilemmas of the late Twentieth Century, there is good reason to believe that this would have very unfortunate results in the long run.

So the reason why the position may not be quite as serious in Britain as it might seem is due to the existence of a diverse and sophisticated 'alternatives' movement with its own publications and communications network, which is seeking solutions to a broad spectrum of contemporary problems and generating alternative policies and alternative view of 'desirable' futures.[13] This, in turn, is part of a much larger international movement, and there is a growing body of evidence which suggests that the growth of interest in this area is itself linked with profound value changes, - at least in Western societies.[14]

Hence there is a complex dialectic at work in this area. Ideas expressed in one location are soon taken up and modified or rejected in another. New syntheses and approaches are evolved and these in turn are published and subjected to further criticism. One of the notable features of the overall debate is that, while some individuals and groups continue to maintain extreme positions, a number of more recent publications attest to the growing area of basic agreement about the nature of some fundamental problems and possible solutions.[15]

After looking at some of the different approaches to the debate and attempting to characterise their main contributions, it will be suggested that the debate in general, and an emerging consensus regarding fundamental problems in particular, have important implications for the curriculum, and indeed for education as a whole.

2.2 An Overview of the Debate 1967 – 1980

The literature in this area is now so extensive that it presents any reviewer with considerable problems of analysis and selection. However for the purpose of this study it is less important to explore the fine detail than to characterise the basic approaches and the overall development of the debate. For this reason, and in the interests of conciseness, this work does not to deal with many of the international conferences and commissions (eg The Brandt Report) that are arguably part of the phenomenon under discussion. Such an omission is not, in fact, serious, because the themes that arise in these gatherings are not materially different to those represented in the literature discussed here. To attempt to cover the whole field in detail would introduce duplications and complexities that would not be relevant or helpful in this context.

The classification of the body of literature is clearly a matter of judgement and interpretation. The study concentrates on works whose content or focus is broad in scope and, generally speaking, global in implication. This approach has resulted in a division of the literature into six broad group according to the basic approaches, areas of interest and emphasis characteristic of the main contributors. These groups are as follows:

A. Environmentalist
B. Technocratic/managerial
C. Systens
D. Ecological/decentralis
E. Economic/developmental
F. Critical/eclectic.

The features that define each group are summarised in Table One. While I have tried to classify books fairly, the complexity of the subject matter makes it inevitable that some works will defy straightforward classification. There are, accordingly, books that either, due to their exceptional range, fit into more than one category, or, often because they derive from disciplines or viewpoints not normally associated with 'futures', books which lie outside the scheme altogether. An example of the former is "Europe 2000" [16] (which is discussed in chapter 4.2.1). It has features that link it with categories D, E and F. An example of the latter is Inglehart's "The Silent Revolution" [17] which deals with changes in values and political behaviour. I do not believe, however, that these apparent anomalies present a serious obstacle. All classification systems impose an artificially neat framework upon an exceedingly complex, interwoven, and yet unitary, reality. The purpose of this classification is not to conceal complexities but to distinguish the main features of the debate in sufficient detail to reveal its central themes and something of its internal evolution. The adoption of such an approach by no means prevents us from utilising the insights of other writers as and when appropriate.

What follows then is an attempt to characterise the major themes and approaches embodied in this very important area of literature. For the sake of brevity each section focuses upon a small number of examples which are taken to be representative of the

group. With this overview in mind it will be possible to take a preliminary look at some possible implications for the curriculum.

Table One

Analytical Outline of the World Futures Debate

	Characteristics and Focus	Futures Envisaged	Major Contributions
Environmentalist	Strong sense of crisis. Limits to growth imminent due to environmental damage, overpopulation, technology. Drastic remedial measures advocated.	Crisis & breakdown of social & ecological systems.	Alerting and warning, sensitising to costs of industrial growth and "progress".
Technocratic/ Managerial	Optimistic and politically conservative. Economic growth vital, "limits" are distant and problematic.	Expansionist, modelled on status quo, but multipolar	Corrective to neo-Malthusian view. Development of options based on Western worldview.
Systems	Based on computer modelling. Holistic & "counter intuitive". Systematic, global focus. Growth unsustainable in finite systems.	Overshoot & collapse &/or eventual equilibrium.	Stimulation of discussion and research on limits & change processes. Elucidation of system dynamics.
Ecological/ Decentralist	Strong sense of costs of industrialism. Utopian and politically radical. Generalises from ecological to social systems. Technophobic. Lacks international dimension.	Small, self-reliant communities. Stability or collapse.	Development of alternative worldviews & lifestyles, promotion of greater cultural adaptability.

Economic/ Developmental	Macro-economic perspective & broadly global outlook. Belief in planning & rational persuasion. Seeks change, but politically conservative. Generally pro-growth.	Complex and various, according to choices made.	Exploration of development strategies, demonstration of interdependencies, sensitises to change processes and policy options.
Critical/Eclectic	Critically compares other approaches and cultures. Seeks understanding at epistemological level. Post-materialist. Favours paradigm change de-centralisation & alternatives.	Complex and various, according to choices and values.	Stimulation of re-thinking and re-conceptualisation of problems on epistemological & comparative levels.

(A) Environmentalist

The environmental movement of the late 1960's and early 1970's expressed a widely felt sense of revulsion and protest at the way that the advanced industrial societies appeared to be polluting their air and water, destroying landscapes and threatening wildlife. Again and again it was suggested that if these destructive processes were allowed to continue unchecked, then at some (usually undefined) point, an environmental backlash would occur as natural systems collapsed under the weight of the stresses being imposed on them. The clear implications were that unless people "mended their ways" (ie controlled population, technology and economic growth), then any one of a variety of environmental catastrophes would befall them. The dominant mood was one of extreme pessimism and threat, and it gave rise to calls for immediate and radical action, however unpleasant. This is illustrated rather well by Ehrlich's "The Population Bomb" (1968), which achieved best-seller status, and accurately reflected the views of the neo-Malthusian wing of the movement.

The book is notable for its exaggerated and over pessimistic view of the world situation, its crude, overblown metaphors (eg "the battle to feed all of humanity is over...We can no longer afford merely to treat the symptoms of the cancer of population growth; the cancer

itself must be cut out")[18] and is equally dismal counterproductive proposals for action. Ehrlich begins with a chapter on the magnitude of "the population problem", follows this with another on the theme that the world is "rapidly running out of food", and then goes on to link various forms of environmental deterioration with human activities. A number of short, fictional scenarios are presented to illustrate come of the catastrophic ways that the problem identified could be resolved, and these are followed by a section which dismisses "family planning" and efforts to significantly increase food production as "non-solutions". Instead, the author proposes strict "compulsory birth regulation" in the developed countries, a draconian approach to environmental protection everywhere, and the adoption of a strategy of "triage" towards poor countries with large, rapidly growing populations.

The "triage" idea was first put forward by the Paddock brothers in their book "Famine 1975" (1967). It involved dividing up the Third World into three groups of nations: those with sufficient resources to be able to survive without outside aid, those which could survive and even prosper if all available aid were concentrated upon them, and those which should be abandoned to their fate. [19] Ehrlich's praise for this proposal was not muted. He wrote:

> In my opinion there is no rational choice except to adopt some form of (the) Paddock's strategy....They deserve immense credit for their courage and foresight in publishing Famine 1975, which may me remembered as one of the most important books of our age. [20]

This example is presented here because it illustrates some aspects of the neo-Malthusian approach to the futures debate, and in particular, the negative and contentious kinds of 'solutions' that were, on occasion, put forward by this group. It provides a point of reference against which we can judge later developments. Even Ehrlich himself was later to tone down his elitist and doom-laden rhetoric, and to collaborate with others on more restrained works, [21,22]

As the environmental movement developed, so it was realised that 'population control', even if achievable, would neither reduce pollution to safe levels nor restore the ecological balance. Neither, of course, could nations simply be abandoned to starve. Barry Commoner was one among many who rejected the repressive neo-Malthusian approach and pointed out that one major reason for the difficulties experienced by developing countries was their colonial past. He also developed a rather more sophisticated approach to the issues then dominating the headlines.

In his book "The Closing Circle" (1971), Commoner argued that environmental deterioration was less a matter of population pressure per se, than a result of the proliferation and 'success' of modern technologies, coupled with widespread ignorance about basic ecological facts. Problems arose because:

> the technologist (had) defined his problem too narrowly, taking into his field of vision only one segment of what in nature is an endless cycle that will collapse if

> stressed anywhere. This same fault lies behind every ecological failure of modern technology: attention to a single facet of what in nature is a complex whole.[23]

In directing attention toward assumptions underlying the definition of technical problems, Commoner pointed the way to later developments that were to focus on such fundamental matters. More immediately, his "four laws of Ecology" (everything is connected to everything else; everything must go somewhere; Nature knows best and there is no such thing as a free lunch), although trite, popularised some basic ecological concepts and arguably did more to make engineers and technologists aware of environmental limitations than did any number of Ecology texts.

"Ecological Survival" stressed Commoner, was certainly not a matter of abandoning technology, but rather it required that "technology be derived from a scientific analysis that is appropriate to the natural world on which (it) intrudes".[24] This was a significant advance on the neo-Malthusian approach, but beyond an attack on scientific reductionism and the tendency for scientific activity to become isolated from the "real problems of the world", the author did not develop a proper critique of science and technology. Nevertheless, some useful points are made. It is suggested that the profit motive in industrial societies mitigates against environmental health by stimulating unnecessary consumption and waste. The idea that such activities may build up "environmental debts" for future generations is an important because it indicates one way that present actions may reduce future options. The notion that "human beings have broken out of the circle of life" and to survive must therefore "close the circle...(and) learn how to restore to nature the wealth that we borrow from it", is a salutary one, though problematic as it stands.[25] The difficulty is that what Commoner was struggling to say cannot be properly articulated from within the Positivistic tradition in which most of his work was carried out. This study will, in due course, turn to other disciplines and intellectual traditions for some of the missing concepts.

What then characterises the environmentalist approach to the debate? Perhaps the basic motivating force is the belief that "people and technology" have violated the natural environment to the extent that parts of it are under extreme threat. From this arises a sense of impending, perhaps uncontrollable, crisis, and hence a basically pessimistic view of the future. There is something almost evangelical about environmentalist demands for radical changes – even sacrifices – in the present, as the price of staving off one or another variety of doom. Yet it would be entirely wrong to dismiss them as the work of cranks. As I have noted elsewhere,[26] basic environmentalist tenets (eg that man is part of nature and should establish limits to his intervention in natural systems), are almost certainly essential components of any desirable future. Survival does in part, depend upon the maintenance of a sustainable balance between human and non-human processes. To define what this balance should be and how it should be achieved given continuous changes in populations, technologies and so forth, is a recurring and consistent problem that will have to be faced for as long as civilised life continues.

The functions performed by environmentalists in the futures debate are at least threefold. Firstly, they have acted as agents of warning, and have thus alerted or sensitised us to an

important range of real and persisting problems. Secondly they have carried out some preliminary analyses which have normative implications and therefore indicate where socio-political decisions and further research are required. Thirdly, they have helped to show that present courses of action are likely to substantially influence the range of options open to future generations. These are no small achievements. In some respects, however, the environmentalist critique, at least in the early years of the movement, was too crude, and it failed to provide a convincing rationale for individual action. It will be necessary to look elsewhere for this.

(B) Technocratic/managerial

This approach is epitomised by the work of Herman Kahn and his colleagues at the Hudson Institute in America. While there is evidence of a progressive moderation of some earlier, rather extreme, positions, more recent works remain distinguishable from other approaches by (a) a fundamental belief in the inherent desirability of Western models of development and styles of technological innovation; (b) the view that limits to (economic) growth are related more to social, psychological and cultural factors than to physical or ecological ones; (c) an under-valuation of the significance of the so-called 'counterculture' and its role in socio-cultural change; and (d) an elitist approach to planning and forecasting.

In "the Year 2000" 1967, Kahn and his co-author Bruce-Briggs set out their "framework of speculation for the next 33 years" (this being the subtitle of the book). It is an optimistic view in which economic trends "will proceed more or less smoothly", human capacities for control and innovation will "increase seemingly without limit" and thus "a period of general political and economic stability" is expected. [28] Working from a set of "multifold trends" which the authors use to characterise major long-term changes in Western culture, scenarios are developed which point towards a richer world in which all nations have become more wealthy and secure. It is, as Cole notes, "essentially a picture of the world status quo maintained...(and one) in which Western technology and Western social forms are adopted by developing nations"[29]

The treatment of technological innovation is similarly notable for its lack of balance. Thus while the authors are aware that "controversial issues" may be raised by new technologies, they consistently fail to deal with the ideological aspects of innovation or its inherent ambiguities. The trends that are described are made to seem almost inevitable, and foreseeable problems largely a matter of planning and 'good' management. If "Things to Come" (1972), is less naive in these respects it may well be partly due to the fact that events had not been going quite according to plan. For one thing, the Vietnam debacle had demonstrated that there were limits to what American technological power could achieve, and for another, the environmental movement had radically challenged some aspects of the prevailing notion of 'progress'.

In this second major study from the Hudson Institute, there is less ethnocentricity and more attention to such things as "sources of stability and instability in the international system".[30] While the fundamental mood of optimism is maintained, there is much greater

awareness of some of the negative impacts of advanced technologies. Indeed, it is admitted that these "can force us into increasingly undesirable moral dilemmas".[31] Nevertheless, the examination of "disillusionment with progress" remains superficial, and the authors conclude that, certain 'difficulties' notwithstanding, "technological growth and economic progress will be able to make the rest of the world rich". They add that "technology can often solve its (own) problems.....some forms of technology are needed just to cancel each other out".[32] The writers seem unaware of the irony here; once one begins to need technologies just to counteract other technologies, then one has started on a receding sequence of negative innovation that may well have nothing whatsoever to do with human needs, or indeed, with any defensible conception of progress.

An advance over "The Year 2000" is the attention paid to cultural factors and value changes. It is not, however, a very big advance because, from the viewpoint of this study, while it is admitted that a new cultural syntheses "could work quite well", the picture that is drawn of the so-called "counter-culture" represents a most perverse interpretation of that movement. It is characterised as being self-indulgent, sexually anarchic, faddish and transient.[33] The authors almost gleefully describe some superficial escapist elements but clearly miss the significance of the deeper changes that were arguably taking place. Their assessment certainly does not square with those of writers such as Allaby,[34] Roszak,[35] and Inglehart,[36] "Things To Come" does not admit of a wider range of futures than the earlier work, and in an all too brief chapter on "The Ideology of Tomorrow" it looks at how basic assumptions about the nature of human beings and different macro-historical perspectives on 'change' can influence futures research. However, instead of treating these systematically and applying the conclusions to their own analysis, the authors end with a rather lame plea for "an eclectic and syncretic combination of all these perspectives".[37]

"The Next 2000 Years" (1976) differs from previous books in taking a more panoramic view of the future. It is also a more disciplined work. Although it retains the same general optimism, it constructs its case much more carefully. Several chapters are devoted to reviewing the outlook for population, economic growth, energy supply, raw materials, food, the environment and technical innovation. The authors conclude that the "limits to growth" position (see below) is not supported by the available evidence. Indeed, in their view, "any limits to growth are more likely to arise from psychological, cultural or social limits to demand, or from incompetency, bad luck and/or monopolistic practices...than from fundamental limits on available resources".[38] Strictly speaking, this is basically true, and it is useful to be reminded that apart from oil, for which substitutes exist or can be developed (albeit at a price), most non-renewable resources are simply not 'running out'. One should not confuse the short-term problem of adjustment with long-term constraints. With continued technical innovation and imaginative planning no one need starve or go without basic essentials. Agricultural productivity can be raised, substitution and re-cycling can reduce demand for new raw materials, and when the price is 'right' new deposits will be discovered and exploited.

Yet there are at least two points where this hopeful scenario breaks down. While Kahn and his colleagues are clearly aware of the need to "maintain earth's fragile envelope"

and appreciate some of the long-term dangers, they show no sign of recognising the true magnitude of the ecological disruption and damage caused by present human activities, (particularly with respect to the deforestation of the tropics and the accelerating loss of whole species of wildlife).[39] A world of some 15 billion people such as is envisaged here might well clear sufficient farm land and obtain adequate supplies of material resources, but the ecological costs of so doing could permanently impoverish the biosphere and hence constrain future human options.[40] While giving the environmental movement some credit for raising important issues, the authors too readily dismiss its more substantiative insights along with the trivial ones.[41]

The other point of difficulty is the way the authors assume that economic growth is unambiguously desirable, and that continued growth in the 'rich' nations will stimulate development in the Third World. Some interesting ideas are put forward in this regard, but nowhere do the authors consider the negative implications of economic growth. Neither do they question the structural inequalities embedded so deeply in existing trade and aid relationships. (See Mishan 1969 and Berger 1976).

"The Next 200 Years" represents a significant advance on the earlier works and shows a change of emphasis: the future now looks less like an "improved" version of America in the mid 1960's. Real world problems and events have highlighted some of the ambiguities and costs of technological innovation and hence the book is more cautious and its prescriptions more qualified. A greater range of potential problems is admitted. Developing countries are no longer expected to slavishly imitate the Western model. Yet for all that, it remains a deeply flawed work. In their attempt to peer far into the future, the authors have misunderstood some of the changes occurring close at hand within their own society. They persist in viewing the environmental movement as essentially obstructionist, an unwelcome impediment to progress.[42] Similarly, the pursuit of 'non-industrial' values by significant numbers of young people is seen as a threat, an "erosion of the traditional societal levers",[43] which could weaken the American economy. It is implied, although not fully spelled out, that the concerns underlying the campus unrest and the questioning of accepted norms during the late 1960's and the 1970's were basically harmful, and might be properly contained by a more authoritarian, even military, style of government.[44]

The central difficulty with this approach is that 'progress' is understood as a continuous process of innovation and improvement. If problems arise in the "earth centred perspective", then we can adopt a more cosmic view and move out into the solar system or even the galaxy. The idea that economic growth, progress and innovation might be interpreted in qualitatively different ways does not arise here. Instead of recognising the variety and legitimacy of the wider debate about 'alternatives', the authors of these books tend to dismiss other approaches out of hand, and thus impair their own analysis. Questions of power and authority are not discussed, but are accepted as unproblematic. The ideological content of technology is similarly overlooked. Instead of helping individuals to develop their own capacities and assessments of the future, much effort is devoted to describing and justifying a pre-existing "long-term, multifold trend". In short, these views of the future are authoritarian, deeply conservative and severely limited by

the failure to examine cultural assumptions. While there is some evidence of a recognition of the need to probe more deeply into paradigms, worldviews and perspectives, this is not attempted in any version in any serious systematic way.

What Kahn and his colleagues have therefore done is to construct an elaborate conception of the near and middle term future that draws its inspiration from a particular interpretation of the existing status quo. We may or may not find this acceptable. From an heuristic viewpoint, however, it does provide a valuable perspective on the industrial world view. It exposes some of the problems that we can expect if that view remains fundamentally unaltered, and therefore helps us to critique it. Yet for all its sophistication, the failure of this approach to encourage a re-thinking of cultural assumptions and a re-conceptualisation of the problems facing mankind means that it actually illuminates only a small part of the range of possibilities that lies ahead. The work of Kahn and his colleagues can, perhaps, therefore be understood less as an attempt to map out truly alternative futures, than to perpetuate a kind of 'cultural colonialism of the present' upon the future.

(C) Systems

The systems approach arose in part from the work of Jay Forrester. He developed an approach to computer modelling which claimed to provide new insights into the dynamics of complex systems. The human mind, he argued was not well adapted "to properly interpret the dynamic behaviour of the systems of which have now become a part". Mental models, he suggested, were "fuzzy, incomplete and imprecisely stated". Furthermore, "within one individual, a mental model changes with time, and even during the flow of a single conversation". The basic problem was that although the human mind was capable of constructing fairly accurate models of reality, it was unable to "determine the dynamic consequences when .....assumptions of the model interact with one another". Thus policies designed, say, to improve the quality of the inner city environment, frequently had "counter-intuitive" results.[45]

Forrester's work on urban planning was controversial,[46] but it was noticed by the newly-formed Club of Rome. This had been established in Rome in 1963 to stimulate research and debate concerning the growing tangle of problems they termed the "world problematique". At a conference in 1970, Forrester presented his world model to the club, and a year later it was published in his book "World Dynamics". The model utilised mathematical equations to set out in an admittedly simplified manner, what were thought to be major interactions between world population, industrialisation, depletion of natural resources, agriculture and pollution. Computer runs using this model resurrected the fears first articulated by Malthus. Yet instead of suggesting that population growth would be limited by inadequate food supplies, Forrester's equations predicted that it could as easily be suppressed by a shortage of natural resources, by inexorably increasing levels of pollution, or by social breakdown arising from crowding, stress and alienation. The fundamental problem was that of exponential growth within a finite system. "Our greatest immediate challenge", he wrote, "is how we guide the transition from growth to equilibrium". If this could not be achieved by conscious human intervention, then "the

social system will choose for us". However, he added, "the natural mechanisms for terminating exponential growth appear to be the least desirable".[47]

Perhaps the central idea of "World Dynamics" is that of the mutually reinforcing nature of events: pollution control by itself would only lead to a higher population and more pollution: population control could facilitate higher standards of living, but this would encourage further industrialisation and hence come up against resource or pollution limits. The solution, according to Forrester is to institute counter-pressures to growth in a coordinated way, ie to simultaneously control population and economic growth, reduce pollution, hold back farming improvements and end development aid. "We may be at the point", he argues, "where higher pressures in the present are necessary if insurmountable pressures are to be avoided in the future".[43]

These ideas were taken up by Dennis and Donella Meadows at M.I.T. They developed a more elaborate version of Forrester's model and came to broadly similar conclusions: exponential growth in a finite system could only lead to a disaster. Even their most optimistic assumptions, when run through the computer, could not avert eventual breakdown. The only way to avoid the latter would be to persuade the world community to work towards and "equilibrium state". The sense of urgency and threat is strongly expressed:

> There may be much disagreement with the statement that population and capital growth must stop soon. But virtually no one will argue that material growth on this planet can go on forever. At this point in man's history...choice...is still available in almost any sphere of human activity. Man can still choose his limits and stop when he pleases by weakening some of the strong pressures that cause capital and population growth, or by instituting counterpressures, or both. Such counterpressures will probably not be entirely pleasant. They will certainly involve profound changes in the social and economic structures that have been deeply impressed into human culture by centuries of growth. The alternative is to wait until the price of technology becomes more than society can pay, or until the side effects of technology suppress growth themselves, or until problems arise that have no technical solutions. At any one of those points the choice of limits will be gone. Growth will be stopped by pressures that are not of human choosing, and that, as the world model suggests, may be very much worse than those which society might choose for itself. [(49)]

The views expressed in "World Dynamics" and "Limits to Growth" were dramatic to say the least, and they received wide publicity. Some tended to accept the conclusions of the two studies rather uncritically, but it was not long before they attracted more considered responses, and these were almost universally hostile. Those which considered the actual detailed construction of the world models found a great many errors and omissions.[50,51] In the first place, both Meadows and Forrester had used <u>globally averaged data</u> in their equations and had therefore glossed over innumerable national, regional and local variations of which, taken alone, might suggest quite different conclusions. Secondly, as

Cole notes on the basis of a careful study of the "Limits" data, "the overshoot and collapse of (this) world system is avoided if fairly modest assumptions are made about the continuity of technical change in materials and food production and pollution prevention".[52] Indeed, this has been confirmed by later developments.[53]

Other critics focussed on the notion of an equilibrium society. Who would decide how this should be achieved? Who would be the first to take a cut in their standard of living? How would the poor nations cope? Without some form of economic growth, would not the poor remain so and therefore be tempted into violent confrontations? Of course, such questions were never answered satisfactorily and the prescriptions offered by Meadows and Forrester were rejected by most critics. Yet this does not mean that the studies were without value. In fact, they gave rise to a number of so-called second generation models which managed to be rather less controversial. Thus, unlike Forrester, Mesarovic and Pestel's study "Mankind at the Turning point" (1974) argued against a retreat into "self-sufficiency" and found no evidence of immediate physical limits that need prevent poorer nations from participating more fully in world trade. Indeed, the burden of their analysis concerns the need for institutional and value changes in the developed world. A similar conclusion was reached by the Latin American Baliroche group: basic human needs could be met in all regions given an effective population policy and the utilisation of non-traditional foodstuffs. Again it was confirmed that any physical limits to economic growth were not immediate or pressing. Significantly enough, the Baliroche study also suggested that "an egalitarian society requires far fewer resources to satisfy basic human needs than does an inegalitarian one".[54]

What has the system approach achieved? It certainly showed that a holistic overview of human affairs could generate new insights, but it also illustrated the dangers of over-generalising and relying on aggregated or averaged data. Second, its early failure to stand up to criticism revealed many areas where further research and debate was needed, and indeed helped to stimulate these. Governments could hardly afford <u>not</u> to reassure themselves on these issues. But perhaps the most useful approach is the way that it challenged what Aurelio Peccei calls "one of civilisation's fundamental myths",[55] ie the idea that <u>unlimited</u> material growth and intervention in natural processes is possible or desirable. While some critics consider that the "limits" debate has been strongly influenced by the self-interest of elites,[56] this may be an unduly narrow view: the implications go well beyond their own specific interests. Limits may be problematic, but limiting principles are required in some areas to counteract the expansionary ethos of a technological civilisation. Difficult though it undoubtedly is, the issue is now firmly on the global agenda.

The global modelling stage would now appear to be over - at least for the time being. Few would now claim a comprehensive understanding of all the complex interactions that would need to be included. And beyond this basic problem lies another. Perhaps the fundamental difficulty with quantitative models is the way that they can "disguise rather than reveal the extent to which their results are dependent on their assumptions and data".[57] Much of the dramatic force associated with the "Limits to Growth" study and Forrester's "World Dynamics" was derived from the apparent validation bestowed by the

computers. People will, in future, be less readily impressed by such window dressing, and this represents a significant step forward.

(D) Ecological/Decentralist

This viewpoint is a complex one that is difficult to summarise. To some extent it has grown out of, and been strongly influenced by, the environmental movement. However, it is distinguishable from the latter because it goes beyond warning and protest to matters of politics and social practice. Its central concerns are the criticism of present social, political and economic structures and relationships, and the attempt to establish a 'new' way of life based on a synthesis of old and new cultural elements, organised according to the tenets of an emerging "post-materialistic" worldview.

An exhaustive description of this outlook cannot be attempted here. Yet some important elements can be noted. There tends, first, to be a strong sense of social and ecological costs of the industrial system, and this is sometimes accompanied by a tendency to overlook the fact/value dilemma (ie the naturalistic fallacy) and to uncritically extrapolate ecological principles into areas of social judgement. A second element is a distrust, or a rejection of large scale organisations and technologies which, it is argued, are responsible for many social and environmental pathologies. Stress is therefore laid on the value of small scale organisations, community life and 'appropriate' or 'alternative' technologies. Participation in social affairs is regarded as a basic right. Third, 'industrial' values relating to such things as economic growth, the Protestant work ethic, the exploitation of human beings and nature, and the ownership and consumption of material wealth are, to a greater of lesser degree, rejected in favour of their 'new age'[58] equivalents: qualitative human development, meaningful work, sensitivity to the rights and needs of others, reverence for natural processes and other life forms, and a belief that once basic human needs are satisfied, wealth and possessions are of limited value. Needless to say, these are not always upheld. Nevertheless, they are genuine and should not be lightly dismissed. As noted above, this somewhat utopian and politically radical perspective is not wholly new, but represents a resurgence of earlier traditions and beliefs in response to the stresses and dissonances created by industrialisation. It is this "rootedness" in past culture and experience which, arguably, lends it much of its strength.

One of the most widely discussed examples of this approach is the "Blueprint For Survival" (1972). Published soon after "Limits", it accepted the controversial findings of that study and outlined a program designed to establish a "sustainable society". The authors argued that

> the main problems of the environment do not arise from temporary and accidental malfunction of the existing economic and social systems. On the contrary, they are the warning signs of a profound incompatibility between deeply rooted beliefs in continuous growth and the dawning recognition of the earth as a spaceship, limited in its resources and vulnerable to thoughtless mishandling.[59]

Radical change was considered "necessary and inevitable" because "the present increases in human numbers and per capita consumption, by disrupting ecosystems and depleting resources, are undermining the very foundations of survival".[60] The program for social change which followed was nothing if not ambitious. It included a "control operation" to eliminate environmental disruption, strict measures to control economic growth and the use of energy and raw materials, the radical de-centralisation of industry and population, and measures to eventually reduce the latter to a "stable" level (calculated to be about 30 million for the U.K).

The model society that is envisaged here consists of small, self-reliant communities based on agriculture and craft industries, scattered across the countryside in bucolic harmony. However, these communities were not to be "inward-looking" or self obsessed". There should be "an efficient and sensitive communication network" to create "community feeling and global awareness".[61] More controversially, it is also stated that "as soon as the best means of inculcating the values of stable society have been agreed upon, they should be incorporated into the educational systems".[62]

It is not difficult to find fault with these proposals, but they are worth examining because they help to illustrate some of the errors and confusions that continue to impede real progress in this area. They also point towards a group of possible futures that many appear to find attractive. In the first place, however, it is philosophically and sociologically naive to imagine that a whole 'structure of life' could simply be dismantled and re-built to a different design. Implicit in this view is the belief that society can be regarded as a collection of 'things' that can be re-arranged at will. Power relationships, ideologies and social 'life worlds' are either reified or ignored. It is as if human perceptions and identities could be shuffled on and off like a suit of clothes. Second, history suggests that whenever one group is able to impose its perceptions on society then repression and tyranny are not far away. There is a strong contradiction between the call for decentralisation and self-reliance, and the authoritarian implications of the prescriptions offered. What is at work here is, as Bradshaw notes, a kind of "withering away of the state" theory. It is assumed that the state can be understood as "the largely neutral, or potentially neutral, director of society, a directing mechanism able to free itself from, and work against, mass consumer capitalism".[63] The "Blueprint" also fails "to consider that the centralised control demanded by the initial program of legislation may be self-sustaining".[64] The Marxist critique is not even entertained. Bradshaw also articulates the fundamental objection to the extreme ecological/decentralist view. In this approach, he writes,

> the question of how the natural processes of the earth can be analysed and utilised to serve man is completely reversed. The issue becomes, how can man be analysed and manipulated to serve natural processes. (65)

On a more practical level, the "Blueprint" also has its weaknesses. Despite a reference to "global awareness", the whole thrust of these proposals is towards is toward self-reliance and a disengagement with the wide world. The idea that the historical relations between rich and poor, North and South, might require the former to retain some residual

responsibility for the condition of the latter (if only as a matter of enlightened self-interest), is missing. So too is any notion of change and further progression once the "stable society" is established. As with many classical utopias, this 'ideal' world is, at leat in this form, static and repressive.

The sweepingly radical approach discussed above drew its inspiration from the conclusions reached by Forrester and Meadows regarding the imminent danger of "overshoot and collapse". This is, as suggested above, a view that cannot, at least for the present, be sustained. Thus the "Blueprint" looks decidedly dated. Its main errors were to accept more or less at face value the validity of these first attempts to come to grips with the "world problematique", and to formulate its proposals in such grandiose plan of action that could, by definition, only be imposed from above. This now seems a curious oversight because it went against the participatory ethos of the period. Nevertheless it has had its uses. It certainly stimulated a good deal of re-thinking and discussion; it has illustrated that 'top-down' solutions are unacceptable; and it has provided part of the inspiration for the formation of groups such as the Ecology Party which have proliferated in recent years. However, "Blueprint" represents only one extreme pole of the ecological/decentralist position.

Taking a broader view, it is immediately clear that while its relations with the science of Ecology remain problematic, [66] the decentralist ideal has attracted growing interest and support over the last decade. Other studies have more successfully demonstrated its positive side, [67] [68] and Schumacher's contribution in particular, will be examined below. There can be little doubt that it can represent an authentic response to some of the less desirable features of the industrial system, and has encouraged a milieu of social and cultural experimentation that may prove valuable in the future. For example, writing of communes, Rigby suggests that

> they represent attempts to develop patterns of living different from those conventionally considered 'normal' by the majority of folk. All of them are, in a very real sense, seeking to create alternatives to the largely unquestioned and taken-for-granted routines that guide and channel the lives of most of us. [(69)]

As will be suggested in Part Three, it is precisely in directing our attention to "unquestioned and taken-for-granted routines", to implicit cultural assumptions, models and values that it is possible to gain a critical purchase on the deeply embedded problems that confront us, and build this into the curriculum. So it is unfortunate that the very groups that carry out much of the practical work are often regarded with indifference, suspicion or hostility. The ecological/decentralist model may not provide a universal pattern for the future of society but it embodies a range of social options and should therefore be regarded as an important cultural resource. As Henderson notes,

> the emerging counter-economies based on self reliant decentralised, ecologically harmonious life-styles are for from faddish. They are deadly serious and must be explicitly documented and reinforced, since they represent the best repositories of

> social and cultural flexibility during the decline now under way in many mature industrial countries.[70]

The contribution of this perspective to the overall debate has therefore been to focus attention on the ecological context that makes human life possible, and on the scale and nature of the institutions that mediate between them. It is not necessary to accept the detailed prescriptions of "Limits" or "Blueprint" to recognise that as the scale and impacts of our interventions into the natural world increase, so humanity should tread more carefully. As Taylor correctly notes, "the recovery of a valid relation to the earth is the hardest thing once lost".[71]

(E) Economic/developmental

This area of debate is characterised by its global approach, its macro-economic viewpoint, its role in international politics and locations within international organisations. Many of the latter exist solely to support research and development in the various related fields: health, agriculture, aid, technology transfer and so on. In theory these bodies exist to promote Third World development, but in fact the inherent complexities, coupled with profound differences of interest and outlook, have so impeded this process that even large scale "set pieces" such as the UNCTAD 5 trade talks appear to break down in a mass of contradictions and recriminations. Thus the editor of a major journal on Third World affairs is led to suggest that "the truth is that the North has no plan other than splitting and weakening the Third World and maintaining the existing exploitative economic order with some modifications and occasional concessions."[72]

While not wholly justifiable perhaps, such rhetoric does reflect the lack of substantive progress towards a more equitable global economic structure. For example, delegates to the U.N. International Year of the Child conference in 1979 learned that 400 million children had no access to decent health care, and 300 million did not even have clean water to drink. UNESCO pointed out that "22 per cent of primary age children did not go to school in Latin America, 36 per cent in Asia and 49 per cent in Africa".[73] Such dismal statistics are not hard to find. In the poorest countries, life expectancy is on average not much more than half of what is considered normal in the West.[74] Sir Bernard Braine summarised the situation when he wrote that "the ..... truth is that after three decades of international aid programs, there are more people in poverty in the world than ever before. Some 800 million human beings (still) live in absolute poverty".[75] This is not, he suggested, something that the rich nations can remain sanguine about. Apart from purely moral considerations, it is becoming increasingly clear than an interdependent world cannot afford to maintain such gross inequalities.

Many books and studies have considered the interlocking set of problems, choices and constraints that characterise the global development dilemma, but they cannot be reviewed in the present context.[75A] The Interfutures study "Facing the Future", however, does warrant close attention. This is partly due to its broad and well documented approach, but more particularly to the way it locates the problems of development and international relations in an explicitly future-oriented framework. It is therefore able to

look at the implications of present structures and trends in relation to a broad range of policy options. In addition, its survey of major change processes now in progress helps to provide a valuable empirical grounding for the futures debate generally.

The study begins by justifying its global and long term approach. This is necessitated, it argues, by the appearance of historically new considerations governing international relations, and by changes in the situations of national governments. The importance of oil, the administration of the oceans and the need to synchronise economic fluctuations all point to unprecedented interdependence. Also, the scale of human activities and the speed with which they take place have dramatically increased. Another factor is the way that government decisions on such things as energy policy have long term implications for the future. Finally, there are the unfulfilled aspirations of growing numbers of people, aspirations that can now find political expression on an unprecedented scale. Faced with these changes, governments have also to cope with internal demands to maintain the high expectations of their own populations.[76]

From a careful survey of existing trends, the authors foresee a period of unprecedented change ahead: a doubling or tripling of world population (leaving the OECD countries very much in the minority), a slow but inexorable movement of industry and economic power towards certain of the emerging "middle rank" nations, problems of access to some raw materials (particularly oil) and increasingly serious threats to the global environment. Faced with such prospects, the industrially advanced societies look particularly vulnerable. An examination of the pressures on their internal structures and on the rigidities that arise from both "the conscious achievement of legitimate social objectives and from the involuntary accumulation of institutions, procedures and rules," confirm this view.[77] Interestingly enough, while rigidities are detected in the ageing population structure, the changing labour market, statutory state intervention and foreign trade, no mention is made of rigidities within educational systems which arguably help to perpetuate these difficulties. (See Fragniere 1979 and Dalin 1978.)

A further danger is seen in the possibility of new "value-cleavages" exacerbating social divisions and conflicts. Contrary to other interpretations (see below), it is argued that while the rise of "post-materialist" values represents "an indisputable socio-cultural change, ushered in by the youngest sections of the population", that a slowing of economic growth could reduce their impact. Indeed, in some ways they are portrayed as being antithetic to economic growth, which is seen as the sine qua non of any real progress. Yet it is also suggested that social conflicts could be reduced by the adoption of a new formulation of social justice, ie "the fulfilment of every individual through active participation in the life of his society".[78] This is clearly an idea that will not simply "go away". Even here though, there are dangers, namely "ill-considered decentralisation", and "new forms of social sclerosis", ie, impediments to effective decision-making. On the whole then, the authors remain ambivalent about the social and economic implications of value changes. They do, however, make the important statement that "the complex relationships between values, growth and structures now make any linear view of development untenable".[79] This means that forecasting and planning can no longer take the form of occasional, "definitive" exercises, but rather must be regarded as a

continuous process of feedback, decision making and adjustment. At this point it remains an open question as to who is qualified to take part in such a process, so this topic will be revised later.

Regarding strategies for adapting to change, the authors of "Facing The Future" recommend a restoration of economic growth, an attack on the above-mentioned rigidities, greater participation, measures to protect those affected by structural changes, receptivity to the demands of "groups likely to shape the future", and, on the international level, the building of a system of cooperation to give the foregoing some chance of success.[80] It is suggested that social, economic and political limits to growth are far more immediate and important than physical limits. So having examined some of the internal problems facing the advanced industrial nations, the focus shifts to the Third World and to the relations between the two groups.

The analysis of Third World development reveals a heterogeneous picture because nations are differently endowed with natural resources, and are by no means uniform with respect to stage of development, social, economic or political structure, and geographical context. However, a few generalisations are possible. One is that political instability seems likely to precipitate socio-economic upheavals in many countries, and this clearly represents a major source of uncertainty for the world economy. Another is that a large reduction in absolute poverty does not seem likely by the end of the 20th century. While some industrialising countries will make good progress in this respect, those lacking in natural resources or with large, dependent populations will remain in difficulty.

The theme of global interdependence is strongly developed within the study and its importance is demonstrated in relation to energy, migration, disarmament, the supply of primary commodities, agricultural and industrial development, and transfers of science and technology. The multi-nationals are admitted to have an ambiguous role, sometimes promoting development, sometimes retarding it. The authors repeatedly stress the dangers of retreated into isolationism and protectionism, although as new centres of industrialisation spring up the temptation to do so will grow. Several problems of adjustment can be foreseen in the mature industrialised countries, and it is suggested that a global perspective will be required to understand them and respond constructively. Interestingly enough, however, is that underlying these arguments for a global perspective is the reality of the biophysical unity of the earth; yet curiously this is not developed here.

The authors advise the developed countries against any attempts to maintain the international status quo. To believe that the latter can persist "is a fallacy because of the weight of the processes at work and the present unsatisfactory functioning of the world economy".[81] Instead they recommend "tackling North-South problems in a constructive spirit", and advise against "seeking to oppose unavoidable trends" in favour of managing them to prevent unnecessary breakdowns.[82] Foremost in the small number of guiding principles suggested is the necessity "to retain at all times a political vision of the future".[83]

Six scenarios are developed which acts as test beds for a variety of assumptions and policy options. Broadly speaking, the high growth and "breakdown" scenarios are rejected in favour of one or another of the moderate growth alternatives. However, limited discontinuities in resource supplies or in political relationships are considered fairly likely. The overall picture is of the world moving into a radically new stage of history, with its institutions, governing elites and populations ill-prepared for the stresses and strains of the transition. The point is made, and it is a key one from the viewpoint of this study, that the necessary extension of cooperation that is required to deal with this needs "a political will....which will not exist in the democratic countries unless the mass of citizens becomes aware of the problems of the future".[84] The critical issues are identified as follows: (1) the transition from over-reliance on oil, (2) the search by developed countries for policies appropriate to the next context, (3) Third World development, and (4) the evolution of new forms of international cooperation. Among the final recommendations are the need to "create a positive attitude to the future in the advanced industrial countries" and the need to review educational programs "in the light of the long term issues described in this report".[85]

"Facing the Future" undoubtedly represents a major contribution to the overall debate. It is not, however, without its faults. While the adoption of a macro-economic viewpoint allowed the authors to draw on a vast body of data and present their case in a language that will be understood the world over, this viewpoint has come under increasing attack in recent years. In the first place the use of GNP statistics tell us little about net human welfare. (See Hodson 1972, Mishan 1979, Henderson 1981.) Similarly, while the case for economic growth may be unanswerable in many of the developing countries, its value is less certain in the industrialised countries unless one can justify the kinds of growth involved.[86] Henderson, for example, suggests that the social cost component of GNP and inflation may now account for the greater part of economic growth in the developed societies.[87] Moreover, while the study points us in the right direction so far as the value of future studies is concerned, it is inadequate on the level of paradigm analysis. In the face of competing approaches and interpretations, the macro-economic paradigm does require at least some elementary justification. But here it is accepted as unproblematic, a neutral screen through which to view the world. As will become evident in part three, no such disciplinary paradigm can be accepted at face value.

On the other hand, the study is of great value in sketching in the magnitude and type of change processes now at work in the world. It shows that business-as-usual approaches in any enterprise are no longer viable. It suggests that spatial and temporal provincialism can only be maintained at great risk, and that what is required is an unprecedented extension of human concern and imagination. Interdependence and interconnectedness require that human beings understand local phenomena in the context of global considerations and immediacies of life in relation to their longer term implications. These ideas are crucial for the curriculum development field.

(F) Critical/eclectic

From the viewpoint of this study this is the most interesting approach to the debate. It is also the most difficult to summarise: much of the best work is fairly recent and new contributions are continually appearing. However, the concern here is not to attempt a comprehensive analysis, but rather to pick out some of the major themes and concerns. The significant thing about this approach is not its basic subject matter which, broadly speaking, it shares with others, but its attempt to dig beneath the surface and seek out deeper explanations. It tends to focus on ideas, values and assumptions embedded in culture and in disciplinary paradigms. What is involved therefore, is a kind of critical re-thinking on the comparative and epistemological levels which, on occasion, verges on the metatheoretical. It is an approach that is open to evidence from virtually any source, including non-Western cultures. But this eclecticism is disciplined by an appreciation of the problems facing the technically advanced societies. What therefore emerges is a critique of aspects of these societies, a strong sense that an historic transition of global proportions is taking place, and a set of proposals for action.

Possibly the central figure in this area is EF Schumacher, whose died prematurely in late 1977. His most influential book, "Small is Beautiful" (1973), represents a significant turning point in the futures debate because, instead of attempting to deal with the "world problematique" in instrumental terms, he argued that many of the problems being experienced were consequences of an "impoverished view of reality" and "wrong ways of thinking and living".[88] He thus directed attention towards aspects of Western culture which he felt needed to be seriously questioned: materialism, scientific reductionism, dualism, organisational gigantism and prevailing conceptions of economic rationality. He argued that with the decline of religion, and armed with scientific traditions deriving from Bacon, Descartes and Newton, Western culture had pursued "power knowledge" at the expense of "knowledge for understanding". This had left them "rich in means but poor in ends".[89] Believing themselves 'master and mistresses' of nature, Westerners had developed technologies which recognised no self-limiting principle and thus an industrial system which, "with all its intellectual sophistical, consumes the very basis on which it has been erected".[90] In Schumacher's view, the single-minded pursuit of material wealth that characterises the industrial system leads only to the destruction of the environment and to existential despair. No only does it overlook the higher needs of people but it systematically cultivates ancient vices such as greed and envy. The result is nothing less than a "collapse of intelligence", a cultivated inability to see things "in their roundness and their wholeness".[91]

Since Schumacher was an economist, and since economics has become a major factor in political decision-making, it is not surprising that he devoted a good deal of critical attention to it. He felt that the dominance of profit-oriented criteria in judgements as to whether an activity could be considered "economic" or not omitted other, perfectly authentic, but non-economic considerations, be they social, aesthetic, moral or political.[92] He concluded that not only was economics methodologically narrow, but that inherent within it was the strong tendency to ignore humanity's dependence on the natural world. In his view, the central economic concept of "the market" represents "only the surface of

a society".[93] Since people are not producers of raw materials (but primarily converters of pre-existing materials), he felt that economics was at its best in dealing with manufactured goods. Natural resources and human services are inextricably linked with the biotic and social worlds, and these he believed the discipline had not the conceptual apparatus to understand or deal with adequately.

Schumacher contrasted the above with a conception of Buddhist economics to show that such a depressing and life-denying result was by no means inevitable. In this Eastern tradition labour and work are not divided off from the rest of life and avoided were possible, but have positive, life-affirming functions.[94] The essence of civilisation is considered to be not the multiplication of wants but the "purification of the human character". While modern economists determine a given standard of living according to annual consumption, this appears irrational in a Buddhist framework where, "since consumption is merely a means to human well-being, the aim should be to obtain the maximum of well-being with the minimum of consumption".[95] With comparisons of this kind, Schumacher helped to further undermine the 'naturalness' and seeming inevitability of Western conceptions of progress, and showed that a re-thinking of scientific and cultural traditions could cast quite a different light on problems, and open up new solutions. He further believed that positivistic science could produce "knowledge for manipulation" but fell silent when confronted with questions of value and purpose. Thus its elevation to a position of pre-eminence had led to a deep sense of confusion about our basic convictions. He concluded that "the task of our generation is metaphysical reconstruction and "a revision of the ends our means are meant to serve".[97] Education could not help us to solve the dilemmas facing us unless it confronted these basic issues. He later expanded these view in "A Guide for the Perplexed" (1977), in which humans are portrayed as "open-ended" beings grounded in materiality but with no discernable upper limits to their capacities.

Thus while Schumacher was severely critical of aspects of Western culture, he did not despair of people. The way out of present dilemmas is to re-think our scientised epistemology and de-emphasis the pursuit of material wealth in favour of qualitative and spiritual development. It is not an option that will appeal to everyone or be appropriate in the poorest developing nations, but it does help point a possible way forward. Indeed, the concept of intermediate technology arose from his work and has since been embodied in numerous concrete applications, particularly in the Third World. (See Dickson, 1974.) His ideas about the desirability of small scale community life have now become commonplace, and his call for metaphysical reconstruction has helped to stimulate a growing body of literature on this subject.

One of the most important writers to emerge in this area since Schumacher's death is Hazel Henderson. Indeed in many respects she appears to have inherited his mantle and carried on his work. It seems to me that there are three main elements in her work. First, she has developed a more detailed critique of economics and of its underlying instrumental mode of rationality. Second, she has tried to show how the breakdown of belief systems in industrial societies may prefigure the emergence of a 'new' cultural

style and worldview. Third, she offers an assessment of the burgeoning self-help/alternatives movement in this process of cultural renewal.

One of Henderson's central concepts is that of the "entropy state". This she defines as "the stage when complexity and interdependence have reached the point where the transaction costs that are generated exceed the society's productive capcities".[98] In her view, many mature industrial societies, instead of moving into the leisured post-industrial society envisaged by Daniel Bell, are "soft landing" into a condition of high inflation, declining marginal returns on capital investment, sluggish economic growth, 'unmodellable' (and thus uncontrollable) complexity and social unrest. The concepts and models put forward by economists to explain this situation fail to do so because they are the products of an earlier, simpler age. She points, for example, to the equilibrium model of supply and demand described by Adam Smith that still underlies economic policy making. Such a model, she suggests, cannot cope with "dynamic, disequilibrium systems undergoing irreversible, qualitative change and structural transformation".[99] Models of this kind "now map a vanished system, monitor the wrong variables (and) generate statistical illusions".[100] Clearly the curriculum is not alone in being riven with conceptual lags!

Henderson offers an interpretation of contemporary change processes that helps fill in the positive side of the picture. In her view,

> all mature industrial economies are in a process of transition from their maximising of material production, consumption and throughput, based on non-renewable resources, to economies based on minimising materials throughput, more re-cycling and product durability and the use of renewable resources, and managed for sustained-yield productivity. (101)

Hence for economics, the urgent task is to "remap" the economy and "redesign our models and indicators more in accordance with today's realities".[102] How can one rely on GNP statistics when these ignore domestic, leisure and voluntary activities and overstate national 'welfare' by including social costs (such as crime, pollution, accidents, etc.) as part of the product? How can one utilise classical models of the market when power lies in the hands of large institutions and information flows to other participants are impaired or distorted? How can we even talk of a "free market system" when "each order of magnitude of technological master and managerial control calls forth a concomitant level of government co-ordination?"[103] In Henderson's view much more attention should be paid to the costs of industrial growth and to understanding how, where and why these arise.[104] Even better would be some measure of net national welfare, which would deduct such costs from GNP.[105]

The epistemological underpinnings of the industrial system also receive critical attention. It is suggested that, the major belief systems of industrialism: continued economic expansion, technological determinism and ... narrow Cartesian reductionism must now give way to a more balanced, transdisciplinary, holistic world view.....The linear reductionist logic inherited from Aristotle and Descartes has been brilliantly successful in

its own terms: the focus on maximising specific variables. This "tunnel vision" has also led to the now-familiar explosion of negative feedback from the global ecological system.[105]

The consequences for those who remain conceptually locked within the epistomology of industrialism is a "metaphysical impasse". One can either redouble one's efforts to make that system work, or one can attempt to "re-conceptualise" the situation and strike out in a different direction. This, Henderson believes, is already happening. She detects numerous "subtle shifts... towards the 'software' approach where we are beginning to look at ourselves and our social and institutional frameworks as the targets of modification".[107] This shift to "software" is depicted as part of a broader shift "from material-based, empirical, objective, instrumental rationality to more subjective, value-oriented cultures". In future therefore, research will need to be transdisciplinary, and it will need to use "models that capture dynamic, qualitative change processes".[108]

It would be difficult to find empirical verifications for generalisations of this type, but as part of an interpretation of cultural change they are suggestive. Although she paints a picture of societies in transition confronted with great uncertainties, tensions and dilemmas, this approach draws our attention to what may well be new and significant cultural growth points. In another paper entitled "The Emerging Countereconomy", Henderson examines some of the ways that people have responded to the new situation. Alternative and counter-media publishing, worker participation and self management initiatives, alternative technology groups, the global ecology and feminist movements, and new problem-oriented political groups all embody strategies for regaining a measure of individual autonomy and purpose during a period of rapid change and uncertainty.[109] In Henderson's view these are not simply responses to the decline of the industrial system, - they may prefigure aspects of future societies. One of the greatest services of the counter-economy is the way that it generates "new images of the future, new alternatives in technology, work, life-styles, family arrangements and societal roles".[110]

Henderson and Schumacher, and the many other writers that they represent here, thus add important elements to the futures debate. They suggest that the problems of the external world: resource depletion, pollution, uncontrolled technologies, social fragmentation and so on, cannot be resolved without reference to ideas, attitudes, values and beliefs that are embedded in cultural traditions. These affect the way we construe the world, and help to determine which courses of action we consider to be rational and desirable. Each suggests that we re-assess the value of our past cultural inheritance in the light of modern conditions, re-consider the costs and benefits of technical progress, and pay close attention to some of the cultural innovations now taking shape around us. The technologies that both support and threaten us are "value-driven" and hence accessible to our influence. Attempts by elite groups to "construct" the future from the top downwards are unsustainable and mistaken. What is required is a deliberate attempt to decentralise power and authority to the lowest possible level so that people can begin to develop their own responses to change. The alternatives movement is seen as a spontaneous and irreversible expression of the desire, and ability, to accomplish this and, in so doing, to reconcile ecological considerations with the satisfaction of authentic human needs.

2.3 Some Curriculum Implications

It was suggested in section one that the secondary curriculum reflects and embodies a set of understandings and images of society and the world at large that may no longer be sustainable in the closing decades of the Twentieth Century, or indeed, in the global, multipolar, interdependent, post-industrial era which will follow. Yet in one sense it is inevitable that the curriculum will be to some extent past-oriented: we will always have more reliable knowledge of the past than the future. If, however, we are aware of the major implications of some of the large-scale change processes now at work, then it becomes easier to see why Wells and Jouvenel, among others, emphasised the need to develop our future-shaping capacities and hence to re-think traditional school curricula.

Views of the future are provisional. But it should be clear that barring a full-scale nuclear war (which would open up a drastically different set of possibilities), we now have a fairly reliable understanding of the basic problems, choices, dangers and general conditions of life that will characterise the near and middle term future. We cannot expect to predict with any degree of accuracy the exact number of unemployed people in Britain in March 1992 or October 2010. But we can certainly identify many of the 'shaping forces' now working to create the future. As will be suggested below, an appreciation of these can assist in a renewed understanding of curriculum tasks. Furthermore, the future should no longer be conceived of simply as a blank, featureless space stretching out endlessly beyond human perception or influence. Rather, it is better understood as a dynamic field of potentials compounded of chance, existing structures and human intentionality. Futures we wish to avoid may therefore become 'falsifiable', subject to conscious influence and change. Thus futurists believe that if increasing numbers of people become aware of the choices and trade-offs to be made, society stands to gain in terms of its overall flexibility and capacity to adapt to changing conditions.[111]

We should not gloss over the fact that a more 'future-responsive' society would have to resolve certain important logistic problems, particularly in relation to decision-making procedures and provision for effective citizen participation.[112] In the light of the issues raised above, however, such problems are minor compared to those that can realistically be expected if the greater part of the population remains preoccupied with close-up, short term phenomena. It is a matter for debate to what extent prevailing images of the world are based on part understandings that no longer reflect what is happening, or what could happen. But the thrust of the futures viewpoint is that rational decision-making, whether on a personal or societal level, now has to take global and long term factors into consideration. We are no longer isolated from the rest of mankind, and those of us whose lifestyle is energy-, and resource-intensive are continually making decisions that affect the future.[113] It is therefore important to understand the ways that the curriculum may perpetuate redundant images, attitudes and values, and try to counteract the existing retrospective tendency by including explicitly prospective elements.

One way to proceed with this is to utilise the whole futures debate as a backdrop and stimulus to curriculum innovation. By bringing its main insights to bear on the curriculum literature and on the continuing discussions in this field, it is possible to re-

structure the curriculum in the light of existing and foreseeable conditions. There can be little doubt that if the next generation is to take part in shaping the post-industrial era then it will need a broad understanding of the past, of the present dimensions of difficulty and change, and of emerging problems and prospects. Therefore a futures approach is complementary to, indeed it partly arises from, a broad historical outlook. (See Chapters 3.1.1 and 3.1.2).

The fact that the study of possibly futures may be influenced by differences of understanding and interpretation, while a genuine problem, is no more of an obstacle here than it is in the teaching of other subjects.[114] In all cases it is possible and desirable to stress the provisional nature of human knowledge and the need for critical evaluation. The purpose of 'teaching futures' would not be to impose limited and personal views on students, but rather to try to illuminate the major choices and issues, and to encourage students to develop their own responses. These could include re-assessing and re-conceptualising the way that problems and choices were framed and formulated within the school. The notion of the negotiation of meanings is relevant here. It leads us into the area of hermeneutics, which will be considered at a later stage.

It is now useful to draw some preliminary conclusions from the futures debate. If we consider its evolution over more than twenty years then it is possible to discern a number of broad developments. One way to interpret these is to view them as part of a collective learning process. Clearer thinking, improved analytic methods and higher quality data, the internal dialectic of the debate and feedback from the environment (cultural and biotic), have tended to render some of the earlier, more extreme, positions untenable, and have facilitated the emergence of a significant measure of consensus.

To begin with, one can detect a shift away from crass neo-Malthusianism and naive technological optimism. Enforced population control and the theory of "triage" are now understood to be as socially and politically indefensible as the belief that technology can solve all problems. It is now clear that there is no absolute shortage of land, food, or most raw materials. The problem in the foreseeable future is more one of the distribution of, and access to, these things. What was once considered to be simply a problem of "too many people" is now understood to be a complex socio-political issue that raises questions about the structure of global economic relations, the continuing exploitation of the Third World, and political and institutional weaknesses within the Third World itself. It is now widely appreciated that the key to population stability lies in the elimination of poverty. Hence, the debate in this area has moved back towards aid policies, institutional reform (including land reform) and the consumption habits of the rich that dominate world trade and increase pressure on natural resources (such as the fast-diminishing tropical forests). Since, therefore, questions of Third World poverty cannot be divorced from the way the rich nations operate, many of the solutions in fact lie with the latter. This provides a powerful reason for why it is necessary to view their day-to-day demands and activities in a wider, global context.

In similar fashion, a naive belief in the inherent desirability of technology is no longer possible. We now have enough experience of the unintended second-, and third-order

effects of new technologies to know that their adoption always involves costs as well as benefits. For example, among the visible costs of the microelectric revolution are increased levels of unemployment, threats to privacy, and new forms of "white collar" crime such as computer fraud.[115] Among the costs of an expanded nuclear program are new radiological hazards, new sources of social conflict (eg over the dumping of radioactive wastes) and the possible erosion of civil liberties.[116] Furthermore, the widespread adoption and use of new technologies often leads to increased dependency, and vulnerability to strikes, shortages and breakdowns. On top of this must also be added the new levels of complexity which create problems for everyone, and make planning extremely difficult.[117]

Thus technological optimism of the kind expressed in the now-dated "Year 2,000" no longer rings true. We now realise that technologies represent the concrete expressions of values, ideologies, and assumptions of various kinds which the apparently neutral language of science (physics, engineering, etc.) can conceal but not eliminate. As Schumacher and others have shown, the adoption of alternative values, ideologies and assumptions leads to different technological forms. This has stimulated a great deal of research and development, and numerous "counter-technologies" are now becoming available. It is therefore no longer possible to think of technology as value-free, 'inevitable' or necessarily desirable. Optimism must now be balanced by a pragmatic assessment of risks and costs. This movement away from simple technological optimism is significant. It has revealed a wider range of possible futures and thus helps to focus our attention on present choices.

A second progression may be detected in the move away from considering problems in isolation, to a more global, holistic emphasis which sees them as being complexly interrelated. This shift arose from the combined work of ecologists, systems analysts and development economists. As suggested above, all three approaches have their individual drawbacks. But together they certainly make a convincing case for considering local and national issues in a global context. From an economic viewpoint, the advanced industrial societies have yet to come to terms with the fact that their continued stability rests on a network of global relationships and agreements. Disaffection, terrorism or revolution in any part of the world may now alter the overall strategic balance, impede trade or affect the strength of national currencies. In such an interwoven situation the 'solution' to one problem may only exacerbate others. This principle is illustrated even more clearly by ecological examples as Commoner argued in "The Closing Circle". Indeed, the literature of the environmental movement is replete with examples of displaced effects (ie the consequences of actions that are separated by time and space from their points of origin). They include: DDT and eggshell thinning in various oceanic birds, freon propellants and ozone depletion, fossil fuel combustion and de-forestation leading to elevated levels of CO_2 in the atmosphere, industrial air pollution in Britain and acidic rain in Scandinavia, and so on. Again it is evident that a broader, long-term view is needed. This has become a central theme in more recent futures literature.

A further shift in the debate is marked by the move away from preoccupation with expertise and centralised planning to a view which sees these as 'necessary evils' that

must increasingly be balanced by greater public involvement in decision-making. While certain elites and a minority of futurist thinkers (such as Kahn and his colleagues) remain hostile or ambivalent about this view, there is now abundant evidence that it is widely shared. Significant numbers of people now appear to doubt if remote decision-makers do, in fact, have the ability or the right to legislate on their behalf in respect of a growing range of issues. (Indeed the very idea of a representative democracy is now in some doubt.[119]) This is reflected in the post-war growth of pressure group politics and grass roots activist movements.[120] To some extent this view reflects a loss of confidence in our major institutions, a feeling that the world has changed quickly, while they change only slowly, if at all. A desire for more participation may also reflect a rejection of the extremes of privatisation and a renewed desire for community. When these views are linked to explicit critiques of technology and industrial culture a powerful rationale emerges for devolved decision-making. A futures perspective lends some support to this because it shows how present choices made by powerful minorities constrain and limit the range of future choices available to everyone.

The final, and perhaps the most significant, progression is seen in the beginnings of a shift of emphasis away from dramatic external evens (such as pollution disasters) to a more critical appraisal of the belief systems, values and paradigm assumptions that underlie them. It is no longer adequate to write and publish books like "Famine 1975"[121] and "Can Britain Survive?"[122] These may have helped the immature environmental movement to propagate its fears, but they are now something of an embarrassment. For one thing, people soon learned that 'criers of doom' almost always presented unbalanced and exaggerated views. For another, such an approach provided no coherent rationale for action beyond a crude take-it-or-leave-it condemnation of present ways of life, because it was sociologically naive. It took no account of the 'embeddedness' of experience, the rationality of decisions taken in relation to individual life worlds or the powerful influences and constraints arising from language and culture.

So the adoption of a more analytic and considered approach to these issues is useful. It helps us to ask important questions about cultural values and assumptions that might otherwise remain unexamined. Equally important, it links the futures enterprise with other fields of enquiry and enables their insights to be brought to bear on future-oriented problems. As will become clear below, critical sociology may help to clarify what is involved in the negotiation of meanings and cultural traditions, both of which are central to the idea of learning to select from alternative futures. Similarly, the movement within the futures debate toward overt culture criticism indicates the need for a broadly metatheoretical overview of these processes.

These four shifts or progressions suggest that a good deal of progress has been made since the days of "triage". To summarise: earlier extreme positions have now been largely abandoned and the complexity and interrelatedness of problems are now evident. Multiple futures are envisaged, and this emphasises the necessity of choice and participation. Finally, new analytical perspectives are being brought to bear on the origins and interpretation of what are, fundamentally, questions of negotiated meaning and purpose.

The value of this body of work is not yet fully appreciated, but it should not be underestimated. Taken as a whole, it provides a panoramic view of the age; of major trends and dimensions of change, crucial problem issues and emerging conflicts of interest, basic choices and policy options. Given an education that provides a working knowledge of these processes, futurists believe that citizens of the future will be able, if they so wish, to help resolve some of the large scale problems while at the same time retaining a high degree of control over their own lives and prospects. Without the knowledge and skills implied by a futures perspective it is suggested that people will be tempted to surrender to the drift of events and therefore become increasingly vulnerable and out of touch with the forces shaping their lives.[123]

The debate about alternative futures therefore has major structural implications for the curriculum. By providing a broad overview of contemporary change processes and future prospects it helps us to see where present curriculum structures may need improving. It focuses attention on where changes are needed if the curriculum is to do more to prepare a minority to merely 'manage' the dangerous and divided world that they will inherit. It is true, of course, that many of those presently involved in education often express genuinely felt, intuitive, interest in the future. Indeed, as noted above, teaching is an activity that is, in large part, inherently future-oriented. But it is also a fact that in Britain the idea of futures (plural) has never been systematically explored in the context of curriculum provision. The few ventures that have been made into this area appear to have stimulated little interest and have, for the most part, vanished almost without trace.[124]

Yet even a casual acquaintance with current affairs shows that tradition is no longer a reliable guide. The 'ground rules' are changing and it is clear that for the technically advanced societies, at least, the industrial age is drawing to a close.[125] Since it would be imprudent to assume that the transition (to what is frequently termed the post-industrial era) will be painless or easy, futurists suggest that school curricula should seek a new balance between the past and the future. It should, they argue, seek to relate our experience of the past to the emerging themes of the present and a growing range of possible alternative futures. Hence it is to these matters that this enquiry now turns.

Section Three: Towards Critical Futures Study

Good judgement entails alternation between the seeing of problems as a whole, which requires simplification, and the discerning of different aspects of problems, which requires analysis.

- John Reynolds and Malcolm Skilbeck, Culture and the Classroom. 1976.

The proof of improvidence lies in falling under the empire of necessity. The means of avoiding this lies in acquainting oneself with emerging situations while they can still be moulded, before they have become imperatively compelling. In other words, without forecasting, there is effectively no freedom of decision.

- Bertrand de Jouvenal, The Art of Conjecture. 1967

The word is the most imprecise of signs. Only a science-obsessed age could fail to comprehend that this is its great virtue, not its defect.

- John Fowles, Daniel Martin. 1977.

3.1 Aspects of the Futures Field

It was suggested in section one that the secondary curriculum, and much of the curriculum field, reflects and embodies assumptions, views of the world and conceptions of curriculum tasks that are, broadly speaking, obsolescent. In part this is because they fail adequately to 'engage with' the central issues and change processes that are helping to shape the contemporary world, and which will constitute major 'life problems' for pupils now in school.[1] The growing discontinuity between a slowly changing curriculum and the rapidly changing world outside suggest that children are being educated for a social and economic order that will have all but vanished by the time they reach adulthood. Section two utilised the world futures debate to explore some of these changes and outlined some broad curriculum implications. Among the latter was the implication that prevailing conceptions of 'the future' (as merely a linear extension of the present) are no longer adequate to guide decision-making and action either within the educational system or outside it. It is now evident that the pace of change and the wide range of alternative future possibilities that can now be envisaged call for more sophisticated conceptions of 'the future' and the pedogogic utilisation of the field which has developed to study it. This does, however, raise a number of difficulties.

At the risk of oversimplification it may be said that the teaching profession has traditionally understood its primary task in terms of the transmission of elements of culture which have been validated by past usage and experience. Indeed, 'past practice' remains an unacknowledged but powerful guide to action despite profound structural changes both within education and in the wider world. To re-orient policy and practice in the light of what <u>may</u> occur 'in the future' would involve challenging many traditional practices and understandings, and therefore cannot be advocated lightly. Thus before a futures perspective can be applied to the problem of curriculum renewal it is necessary to look more closely at the futures field. In particular, it is helpful to show in what sense we may attempt to 'study the future', since this clearly presents difficulties. It will also be useful to look closely at some of the major themes and concepts of futurism (a social movement) and futures research (a set of academic and applied disciplines). A critical assessment of these highlights certain problems and potentials. It also helps to account for the fact that futures education developed much more rapidly in North America than in Britain. An overview of the deficiencies of the futures field leads, in turn, to a consideration of ways that some of these might be remedied by drawing selectively upon other areas of enquiry. Section three ends with an attempt to outline some of the features of a critical approach to futures study. The latter is then applied in section four.

The major claim advanced in the present section is that while beliefs about the future are necessarily uncertain and problematic, they bear a crucial relation to beliefs and understandings about the past and share certain commonalities. Not least of these is the way that both 'history' and 'futures' interact to mediate the present. Viewed in these terms it becomes clear how futures study can become a major force for curriculum renewal in a changing society.

3.1.1 The 'Study of the Future'

To 'study the future' seems, at first sight, to be a paradoxical exercise. It appears to be a realm of uncertainty and non-existence that is open-ended and unbounded. Locked as we may appear to be into the patterns of the past and present, the future seems elusive, mysterious and even threatening. How can such an insubstantial realm be studied? Surely, given scarce resources the critic may ask if it is not wise to attend to 'matters in hand' and let the future take care of itself? It is a view that is sanctioned by biblical authority: "take therefore no thought for the morrow" writes the Apostle, "for the morrow shall take thought for the things of itself. Sufficient unto the day is the evil thereof" he adds ominously.[2]

Yet this can only be sustained if the actions of human beings are without consequences and their consciousness is indeed bounded by the present. The suggestion here that such a view is, in fact, insupportable: the individual and collective actions of humankind alter the basic conditions of life upon the planet, and 'the future' is no less important to it than 'the past'. Section two illustrated some of the processes that are involved in the former and the latter is examined in more detail below. First, however, it is useful to deal with an essentially semantic problem.

Some confusion is caused by the widespread use of the singular terms 'past' and 'future', when in each case not such unitary entity may be distinguished. Just as there can be no single, 'complete' interpretation of history, so too there is no singular future, but only a range of possibilities and potentials that invite imaginative (and intellectual) exploration. To attempt to 'study' a singular future could only take the form of learning about a pre-determined, and determining, situation in which the possibility of choice would be lacking. Clearly this is absurd. Everyday living makes choosing, and the weighing of alternatives, necessary and unavoidable. In fact the former pre-supposes the latter, and this implies that on a commonplace (and indeed, largely unconscious) level, 'fore-casting' is what Jouvenel calls "a natural activity of the mind". Hence <u>a productive way of viewing the futures field is to see it as an extension of techniques and capacities that have their roots in everyday life.</u> If this conception has value it is because however remote and esoteric futures research may appear, its origins make it potentially accessible to anyone. Similarly, those working in difficult and specialised areas may benefit from knowing that, as with language itself, their activities draw on social and cultural resources that are part of a common heritage. This has important implications for education.

It is therefore clear that one of the basic confusions has its origin in the widespread use of the term 'future' (singular), and it is retained here only where it is unavoidable. In fact, futurists attempt to 'study' a great range of futures (plural), by which is meant <u>the purposeful exploration of alternative possibilities, options, scenarios, courses (and consequences) of action</u>. There are, of course, other problems that cannot be so easily resolved, but before examining some of the 'foundations of futures study' it is helpful to understand why increasing efforts are being devoted to this area of research and study in

fields other than that of education. Many explanations have been advanced, but attention here is restricted to some of the most central.

Perhaps the most fundamental reason for projecting our minds forwards is that it is a basic necessity of life that cannot be avoided. Research suggests that perception is an active process which, in part, involves a regular 'tacking' back and forth between estimates of possible futures (ie forecasts) and evaluations of past events and understandings.[3] As Anzalone notes, "we anticipate by virtue of the way our minds work – not because of training in particular subject matter".[4] Hence the construction and experience of the present is closely associated with blending 'facta' and 'futura' (see 2.1.1) with the stream of events in which human beings are immersed.[5] This is not to suggest that the actual processes at work are well understood. It is clear, however, that many actions and decisions made in the present are only explicable in relation to goals, hopes, expectations, wishes and the like which are situated in an imagined future. Singer has coined the term 'future-focused role image' (FFRI) to describe one aspect of this phenomenon. In his view "the FFRI is our self-image projected into the future, and it lends meaning to much of what we do in the present".[6] Identity seems to arise not only from past experience but also from "anticipated selves". He also suggests that "without the self-image that links our present behaviour to our view of our future, all human activities....would be merely responses to immediate stimuli".[7] Such a claim is hard to evaluate, but the general argument appears sound and is congruent with what follows.

Jouvenel is a major figure in the futures field and he too emphasises the central importance of this dimension to individual life. He writes, "knowing myself as a cause, I contemplate various effects: situated where? – In the future".[8] For him the past is "the domain of knowable facts" but "the only use of 'facta' (ie past knowledge) is as raw material out of which the mind makes estimates of 'futura'."[9] He continues, "man acts, not 'because'....but 'in order to'...."Action", he suggests, "is explained by its final cause, its goal".[10] These views now seem a little overstated: the 'solidity' of past facts now appears less certain (see below), and we may doubt if 'action' may be subsumed under any such single-factor explanation. Yet it cannot be doubted that personal identity, significance and action are, in part at least, bound up with assessments of future possibilities. That these processes are largely sub-conscious serves to underline the necessity of making our assumptions about the future more explicit, and therefore more accessible to critical evaluation. Nowhere is this more crucial than in education which, as we have suggested above, is an activity that is, in large part, inherently oriented towards the future.

A second reason for increased concern with future possibilities is associated with the fact that our species now carries an unprecedented responsibility for what actually happens in the world. At the most dramatic extreme it is now widely appreciated that the use of existing stocks of nuclear weapons would end civilisation. But this is only part of a much wider concern. On a less dramatic, but equally important level, it is now evident that the future is, in some senses, an 'artefact', an unfolding series of consequences arising from human actions, decisions and technologies,[11] While we must doubt if people will ever gain the power to freely 'choose' their futures, this metaphor of 'future as artefact'

articulates deeply felt concerns about the increasingly powerful 'shaping capacities' available to humankind and hence the need to understand and control them. Indeed, much futures effort is devoted to describing and analysing what is held to be a global transformation, and the world futures debate may be regarded as a major expression of this work.

A further stimulus to 'the study of the future' arises from the related need to reduce uncertainty in what are increasingly perceived as "turbulent environments".[12] Such 'turbulence' affects all sectors of society. It appears to result from the effects of multiple, cross-cutting changes in ways of life, technologies, population levels, environmental constraints, international relations, and so on.[13] A description of these changes cannot be attempted here, although some of them have been alluded to in the previous section. It is helpful, however, take note of the suggestion advanced by writers such as Ward,[14] Harman,[15] and McHale,[16] that they have given rise to a set of interlocking global problems that are unprecedented in human experience. If there is any truth in this view, then the need to re-interpret past experience in the light of changing future prospects becomes central to the conduct of human affairs because the applicability of 'solutions' to earlier problems must now be considered to be in doubt. Hence, knowledge of the past can, it seems, only be regarded as a partial guide to action, and must be judged against assessments of the present and future. Jouvenel amplifies this point when he states that:

> as foreseeability is less and less granted to us and guaranteed by an unchanging social system, we must put more and more effort into foresight. A saving of effort is possible in a society whose life is governed by routine, whereas the exertion of foresight must increase in a society in movement.

He continues:

> efforts to introduce something known and steadfast into the shifting ground of the future....may be interpreted as an offensive collectively waged on the future and designed to partly tame it. As a consequence, the future is known not through ....guesswork....but through social efforts....to cast 'jetties' out from an established order and into the uncertainty ahead.(17)

That such efforts are necessary cannot be in doubt, but it should also be recognised that access to these 'jetties' is often heavily skewed in favour of restricted groups. As one writer has noted, "there is....a very real danger that futurist expertise could become a monopoly of power groups within nations, and of rich nations within the international community".[18] Thus (to change the metaphor), the institutionalisation of futures research may merely allow the powerful to 'colonise the future', thereby promoting the continued dominance of particular, limited, outlooks and interests. The overall result is likely to be to make certain conceptions of 'the future' appear to be natural and inevitable, and to reduce the range of available options and choice. This concern is taken up below.

The ubiquity of various forms of forecasting testifies to the existence of a near-universal need to reduce uncertainty and increase human control. It is true that many of the more

sophisticated forecasting exercises are carried out on behalf of government, business and the military. Frequently the emphasis appears purely technical. (See below.) But it is useful to recognise that activities of this kind have their antecedents in traditional cultures, and reflect universal human needs. In Britain, this is reflected in the persistence of simple maxims such as 'look before you leap', 'a stitch in time saves nine' and 'forewarned is forearmed'. Such widely used sayings may be regarded as socially grounded recognitions of the indispensibility of foresight, and doubtless similar examples can be gleaned from other cultural contexts.

The functions of foresight are too numerous to receive full attention here. But there are at least two major ways that it can act as a guide to action. The first is when some desirable state of affairs is envisaged, which then acts as a focus and rationale for subsequent behaviour. Here foresight aids the articulation of human purposes and permits a measure of 'shaping influence' over the future. (It is this to which futurists refer when they speak of 'building the future', - another common metaphor within the field.) A second major use of this capacity is in the avoidance of problems, situations, consequences which are perceived as undesirable. Thus forecasts of disaster can lead to their own falsification if the appropriate responses are made. The application of this principle motivates a great deal of organised social activity: from road safety campaigns to a resurgent Campaign for Nuclear Disarmament (CND). Thus, while a major reason for probing into possible future events is to attempt to reduce uncertainty, there remains an ineluctable principle of uncertainty in this dimension that provides 'space' for human decision-making. Jouvenel holds that this principle "characterises the particular events which most directly interest us, inasmuch as any knowledge we acquire of them can incite us to an action which will contradict this knowledge."[19] There is consequently a tension between what can be 'known' about possible future states, and what, by virtue of such 'knowledge' can be achieved or avoided. Approaches to 'studying the future' are discussed below, but it may be suggested here that the freedom to act and to make decisions does appear to bear a crucial relation to the ability to exercise foresight.

A further, and related, reason why efforts are made to obtain some knowledge of possible future states arises from the complexity, interconnectedness, and proliferating dependencies that are characteristic of technically advanced societies. Technical progress has served to regulate many natural processes and bring greater order to human existence. But it has also led to a high degree of dependence on fabricated systems which, unlike some of those they have replaced, are neither self-regulating nor self-repairing. To deliver the necessities of life to affluent Western populations requires the constant input of energy, skill and raw materials. In such a situation it is necessary to make provision for contingencies of many kinds lest the whole structure be threatened. Future stability cannot be assumed because there are simply too many things that can go wrong. Thus the normal operation of such societies requires a considerable investment in contingency planning, economic forecasting, estimates of future demand for transport, food, leisure, education and so on. It is therefore not surprising that the dominant modes of thinking about and 'researching' the future have tended to fall into the spheres of social planning and technical and economic forecasting. These have become inescapable necessities in

modernised societies, but they also raise problems when the exercise of these functions become institutionalised, bureaucratised and remote from the public.

Finally, motivation to 'study the future', and perhaps to even change it, (to change, that is, what seems to be likely), may arise from fear or from a concern to preserve future options. Both are related to the falsification of forecasts noted above, and both are grounded in a belief that certain activities and trends in the present may be eroding the span of future choices, available to us and to future generations. The 'Limits to Growth' study[20] and CND literature[21] represent two forms of this approach. In these examples the 'feared possible future' threatens to cancel all effective options by ending civilised life as we know it. Other, less apocalyptic, concerns include the implications of petroleum depletion,[22] the loss of tropical forests,[23] desertification,[24] the accelerating extinction rates of plant and animal species,[25] and the long-term storage of radioactive and toxic chemical wastes.[26]

It is not necessary to establish the verifiability of these concerns in this context – indeed, many cannot be tested in any formal sense since assumptions about the future cannot be proved. But the general principle can be sustained that since many activities generate consequences that are far removed in space and time from their points of origin, they need to be evaluated not merely in terms of proximate consequences, but of longer-term impacts and implications. While long-term forecasting is certainly a challenging matter, each increase in technical knowledge appears to call for a corresponding increase in foresight. One may draw an analogy here with developments in transportation. Just as modern modes of transport require ever higher levels of anticipation, the nature and scale of other human activities now make the exploration of possible futures more imperative than it once was in slowly changing, traditional societies. A practical application of this idea may be found in the research carried out in recent years into the climatic implications of elevated levels of CO_2 in the atmosphere (caused by the combustion of wood and fossil fuels).[27]

Perhaps the underlying concern of futurists and others is to come to grips with the problems involved in attempting to exert greater human control over the unfolding of events. As Vickers expresses it, "the paradoxical dilemma into which the Western world is moving (is that) it grows less controllable with every advance in the techniques of manipulation and less predictable with every advance in the technique of information handling."[28] This question will arise again below. Here it should be noted that scientific progress and technical virtuosity, far from assuring the future, appear to have rendered it increasingly problematic. That is why, to some extent, for many observers the issue is not simply that of preserving options but of survival of itself. (See Feccei, 1981).

Interest in 'studying the future' therefore seems to arise from a desire to respond to the perceived challenges of the Twentieth Century: growing complexity, interconnectedness, human and technological impacts, wholly new potentials for good or ill.[29] It must be doubted if attempts to 'educate for the future' can succeed until such concerns are brought into a coherent relationship with curriculum theorising, research and practice. Indeed, the present work is conceived as a step in that direction.

The question arises as to how, and in what sense, human beings may hold beliefs about the future. Clearly these cannot aspire to the same epistemological status as beliefs about the past, since the level of uncertainty is much greater. On the other hand, all belief embodies a measure of uncertainty (and a thesis is disproved more readily than proved.)[30] Again, it has been said that "there are no future facts",[31] and one implication of this is that the future cannot be foreknown (other than by extra-rational means). Yet facts are not discrete and 'finished' entities. They are dependent upon theories which are vulnerable to criticism.[32] Furthermore, what counts as a fact depends upon the concepts employed, the criteria of truth and meaning, and the purposes of the actors in question. A fact may therefore be regarded as a provisional, socially negotiated agreement about some aspect of the past. As such, it differs from beliefs about the future less dramatically than might be expected. (See below.)

This noted, it must be emphasised that humans do not live in the past, but in the ever-changing present, and this embraces aspects of past and future. In other words, the view taken here is that human life is embedded both in historicity and futurity. In order to act, people project their experience of the past onto an infinite number of possible futures where their hopes, fears, goals and intentions are located. In so doing they endow these latent potentialities with significance. While they are not subject to the same kinds of verification as beliefs about the past, they do provide 'feedback' in the present which appears to guide and condition many of our activities.[33] Thus to 'engage with' that which has no empirical existence seems possible (even unavoidable) precisely because aspects of latent futures exist within human minds and appear to be partly constitutive of consciousness itself. As Jouvenel notes, "it is all very well to say that the future is unknown. The fact is that we treat many aspects of it as known, and if we did not we could never form any projects."[34]

It is therefore entirely possible to speak of beliefs about the future without implying by this that people have complete foreknowledge of what will happen. The former are inherently provisional but they appear to bear a crucial relationship to human purposes, intentions and meanings. They draw on understandings of the past but differ from these in that they are less structured, more open to revision and refutation. Indeed, as noted, it is this very malleability which permits some measure of influence over the unfolding of events. Just as facts become facts by virtue of complex social processes, so perceptions of the future appear to be affected both by the goals and experience of individuals and by socially-negotiated conceptions regarding what is possible, probable and preferable in the future. That such 'negotiations' are often hidden, implicit and distorted by unequal power relationships is an issue with which this enquiry must deal.

Beliefs about the future may be derived from numerous sources, and futurists have developed methodologies that extend the power and range of many of these. (See 3.1.3). But, generally speaking, there is little that is esoteric about their origins in everyday life. Thus, before turning to parallels between the study of past and future, it is helpful to elaborate an understanding of future-oriented beliefs by looking briefly at some of their commonplace forms.

One form is to be found in the "rich store of structural certainties" that all humans possess. These provide a framework for speculation which arises from the regularities of previous experience.[35] Thus, at a fundamental level, the motions of the sun and moon, the rhythm of the seasons, the life-cycle of individuals all establish patterns and expectations which are likely to persist. On another level, such 'certainties' are provided by well-established rules of behaviour (such as the driving code), by patterns of language and culture, by institutions, by the physical landscape and infrastructure. People no longer expect these things to persist completely unchanged, but they do expect structural change to be slow in most cases and for frames of reference to exhibit continuity.

Closely related to the above are what are often termed 'heavy trends' which can be observed in our environment, and which indicate how things are changing. These enable estimates of future conditions to be made, and in this way structural certainties may be modified or steps taken to avoid possible undesired consequences. Rising levels of unemployment and diminishing reserves of petroleum are two examples of such trends. These "confidently foreseen changes provide future data that can be important even if they remain 'fuzzy'…..forming a frame within which our thought represents the future".[36] However, the detection of such trends is dependent upon the quality of the monitoring that is carried out and of the information that is acquired.[37] As will be seen below, this consideration is crucial in the context of curriculum renewal.

Recognition of trends and structural certainties leads to an examination of possible consequences and conditional forecasting. At the simplest level, this may take the form of if/then reasoning (if petroleum reserves are diminishing, then we should conserve stocks and seek out alternative sources of energy). This should not be confused with prediction, a more specialised form of forecasting which asserts knowledge of a future state or event with a high level of confidence, and is therefore more suitable for limited situations where quantification of all significant variables is considered possible.[38] Conditional forecasting, on the other hand, appears to be ubiquitous and unavoidable, and draws both on intuitive and rational sources. It clarifies even very mundane choices (choice of suitable clothes, money needed for a journey, convenient departure times, etc.). It enables men and women to plan ahead and to distinguish between 'future data' that are relevant and those that are not.

A fourth source of beliefs about the future is more difficult to summarise because it draws on a wide range of phenomena: on dreams, visions, dystopian and utopian writing, religious beliefs, cosmological theories, and so on. Images of the future arise in many ways and have become a major focus of future-oriented research. They appear to owe more to imagination and intuition than to reason per se, and may help to redress the pre-dominant influence of the latter, to some extent. The importance of these images has been confirmed by empirical studies[39] and are of considerable interest to futurists[40, 41] because they exert profound influences on present behaviour and help to define what is considered to be desirable and possible.[42]

The study of the future is thus not only a matter of verifiable propositions, but also of guiding perceptions, beliefs and images. Forecasting, anticipation and speculation may be regarded as practical necessities of life which take on increased significance during periods of rapid social and cultural change. If there is one certainty that dominates the closing decades of the Twentieth Century, it is that the futures in prospect are strikingly divergent from anything that has occurred in the past. This is not to suggest that current perceptions of the future are in any way superior to those of the past. Rather, they are best regarded as mutually supporting and complementary. It is to this question that this work now turns.

3.1.2 Time Past, Present and Future

In previous sections this work has adhered to the usual three-fold division of time considered normal in Western culture, along with an implication of linear, forward-flowing movement. But before proceeding to discuss these categories further, it should be recognised that this conception is quite recent and differs considerably from those of earlier epochs and other cultures. A recognition of this fact is important for two major reasons. Firstly, it suggests that the relation of 'people' to 'time' is in constant flux and that existing notions of temporality can be expected to change. Secondly, it helps to problematise our own, inherited, conceptions of time and opens up a much wider range of cultural resources. These enhance our understanding of temporality and the potential for further reconceptualisation. In this way the perception of 'alternatives' may be freed, to some extent, from the limitations of current Western models.

Gurevitch provides a useful overview of some of the major changes in temporal perception in 'Time as a Problem in Cultural History'. In his account, the earliest people are believed to have experienced time as an immediate and mystical force that permeated all aspects of life and was not fully distinguishable from it. The implicit time-frame was almost certainly limited to the recent past and the near future, giving rise to a fatalistic and effectively atemporal orientation. Time seemed either immobile or cyclic, following the cycles of natural events. Perceptions of this kind may have reflected "a specific appraisal of the human being (which attached) no value to independence and originality".[1] Such perceptions arguably have counterparts today in the time sense of the unemployed and unsuccessful.

In Gurevitch's view, "it is not possible to draw a clear distinction between past, present and future until the linear perception of time, linked to the idea of its irreversibility, comes to predominate in the social consciousness".[2] Elements of linearity appear to have been present in the earliest cultures but did not become dominant until recent times. Ancient Oriental and Greek cultures stressed immobility and the "eternal present indissolubly linked to the past". Change was superficial, affecting "the surface of life rather than its essence". This view was epitomised by "the interpretation of the body in ancient art (which showed that) men saw in the present moment the fullness of being complete in itself and not subject to evolution".[3]

Roman historians drew upon rationalistic elements of Greek thought and "became far more alive to the linear passage of time". They also ascribed greater importance to particular historical events, but were unable to dispel a "general historical pessimism". They "did not perceive history as a drama, a field of action for the exercise of man's freewill".[4] With the advent of Christianity, the perception of time underwent further changes. The atemporality of previous ages became 'eternity' which men and women could, by their own actions and the intercession of God, aspire to know. Furthermore, "historical time (acquired) a definite structure, being clearly subdivided….into two main epochs, before and after Christ, (and) time became….vectoral, linear and irreversible".[5] This conception, however, was bound to the past of the Old Testament and a narrow, other worldly, view of the future. While it was distinctive in its recognition of the necessity and importance of human choice,

> Christian historicism is specific. It admits of evolution, change; but this….is not unlimited, it does not contain possibilities freely realisable, and it cannot lead to unexpected results not seen beforehand ….The divine purpose of history (is) inevitable, and predetermined by a rational God.[6]

During the Middle Ages, conceptions of time were more varied, but the "church was mistress of social time", linking astronomical cycles with the religious calendar. Moreover, "ecclesiastical time could remain preponderant so long as it corresponded to the slow, measured rhythm of the life of a feudal (and agrarian) society".[7] But with the rise of European towns and cities, many of the traditional relationships were broken. New rhythms of work developed in increasingly man-made environments where nature, the church and other feudal restrictions were overcome by new needs and purposes. Of central importance was the need felt by merchants and traders to enforce new standards of reliability and precision. In pursuit of efficiency, time itself took on a new importance and work became increasingly regulated by it.Thus,

> mechanical clocks were installed in the towns of Europe at a moment when the influential social groups had become aware of the need to know the exact time. These groups broke away….not only from a 'biblical' time but from the entire way of perceiving the world which characterised the traditional agrarian society.[8]

Indeed, it was this invention which "created the conditions necessary for evolving a new attitude toward time, regarded as something flowing at a uniform regular pace, divisible into equal, non-qualitative units".[9] These changes, occurring prior to the industrial revolution (but necessary to it), formed part of a wider transformation by which human life was increasingly regularised, routinised and subjected to 'external' control. Their consequences are arguably among our greatest problems today, and will be examined below (in relation to the work of Habermas and Mumford in particular)

As mechanical clocks came to occupy a central position in the regulation of social life, so the new sense of time became fully established. As Gurevitch puts it, "Time for the first time, and for good, 'extended' in a straight line, from the past to the future, passing through a point called the present".[10] Also, in his view, this became "a thing of great

value", both socially and individually: "the individual … began to see himself not as a generic being, but a unique individuality….exercising his capacities in the limited span of life allotted to him".[11]

Fundamentally, this 'industrial' notion of time has changed little with its increasing dominance. Time and space are now regarded as autonomous abstractions that are independent of ourselves or events. We have become used to these new regularities and the way they allow us to look back into the distant past, or forward into futurity. Yet, having mastered the ability to measure and manipulate time, it is clear that some of the consequences are ambiguous. In some senses "we have become a slave to it". Gurevitch continues

> contemporary civilisation has witnessed an immeasurable increase in the value and importance of speed, and a radical transformation in the very pace of life, a pace which is now regarded by the inhabitants of the industrialised countries as normal and inevitable.[12]

It is important to recognise the truth of the first part of this statement – life is undoubtedly more hurried in many respects than it once was. But, certain popular futurists notwithstanding,[13] we may legitimately question both the 'normalcy' and the inevitability of this process. For with the decline of industrialism as a way of life, there is evidence that a further transformation is now under way which may overturn, or reverse, many of the certainties and assumptions of that age. Part of this is a profound alteration in the time sense of some social groups, an alteration that may spread as the conditions of life in a post-industrial milieu become established. (See Wilber 1979, Chapter 6) With this in mind it is now appropriate to consider the present three-fold division of time in more detail, but with the recognition that it too may be superseded as the historical process unfolds.

In everyday usage, the terms past, present and future correspond approximately to 'that which has been', 'that which is now' and 'that which may be'. There is here a sense of discreteness and separation which is reinforced by the structural separation of the tenses in the English language. But this is misleading: the words mask a much more complex and interwoven reality. As noted above, singular terms are often inappropriate in this context. Since no two individuals have the same life history, view the world in exactly the same way or anticipate identical future prospects, it is reasonable to assume <u>an infinite plurality</u> of pasts, presents, and futures (which are real enough but inaccessible, implying a need for hermeneutic skills; see below). Neither can a distinct, three-fold division of time be sustained since no point or boundary may be distinguished which fully separates 'past' from 'present' or 'present' from 'future'. Hence, <u>any model of temporal processes should be interactive</u>. These commonsense categories interpenetrate, and human consciousness appears to utilise them in numerous ways. This was intuitively understood by the poet T.S. Eliot who believed that:

> Time present and time past
> are both perhaps present in time future,

> and time future contained in time past.[14]

A more demanding formulation of the same idea is given by McHale:

> The future of the past is in the future,
> the future of the present is in the past,
> the future of the future is in the present.[15]

These lines seem paradoxical because they reveal the limitations of these traditional categories, while at the same time transcending them by portraying their permeable, interactive character. The paradox disappears if we re-phrase the statement in the following way:

> History extends through our time and beyond it;
> the options open to us have already been partly shaped;
> and what we decide, in turn, affects our descendants.[16]

A closer look at 'the past' and 'the present', will reveal that they too are no less problematic than 'the future'.

It has been suggested here that as a field of knowledge 'the past' seems more 'solid' and 'real' than possible futures. Common experience, along with the work of historians and others, provides us with more or less reliable understandings of the world and our 'place' in the unfolding stream of events. But past events cannot be fully separated from the interpretive frameworks by which they are known and recorded. The 'facts' of history are generated by historically and culturally situated individuals, each with their own biases and interests. Neither may history be considered in any sense complete since the greater part of it is unknown and unrecorded. As Carr has noted in reference to a well known historical event:

> It is the historian who has decided for his own reasons that Caesar's crossing of that petty stream, the Rubicon, is a fact of history, whereas the crossing of the Rubicon by millions of other people before or since interests nobody at all.[17]

Thus our sense of the past is radically incomplete. It rests upon a formalised distillation of countless individual histories, most of which are lost to us, framed by the dominating events and personalities of every era. While the corpus of recorded history is indeed large, it remains but a small fraction of the whole. Historical facts are certainly more 'robust' than ideas and images of possible futures, but they also admit of uncertainty. Trivial disputes in modern sporting contexts, for example, reflect wider historical uncertainties about 'what really happened'. When histories are written by, or on behalf of, the privileged or victorious, they may later be rejected and re-written. (This process has been particularly visible in, eg, former colonies and post-Mao China). If recent events are susceptible to divergent interpretations, then it may be assumed that the further back in time we may attempt to probe, the more the uncertainties will mount. (See Figure 1.)

Even in this brief review, it is evident that history is less a matter of irrefutable and objective facts than of "an accepted series of judgements".[18] Anyone who attempts to study the past may strive for objectivity but it cannot be fully obtained because "we can view the past …. only through the eyes of the present. The historian is of his (or her) own age, and is bound to it by the conditions of human existence".[19] Thus such knowledge as we have of 'the past' is less complete and finished than it may seem. It is permeated by uncertainty in part because selection and interpretation are inseparable from the generation and acquisition of knowledge. (See below.) History may therefore be conceived of, not as a monolithic whole, but as a plurality of changing bodies of knowledge, experience and culture which each generation inherits, generates, selects from and re-interprets for itself. Furthermore, while we have no choice but to base our understanding of the world largely upon historical knowledge, it is foolhardy to assume that this provides a reliable guide to 'the future'.

Turning now to 'the present', this too is elusive – even paradoxical, when understood simply as 'the fleeting moment', for it can never be perceived directly. To some extent this is a consequence of irreducible time lags which occur between the reception of sense data, its transmission to the brain and the 'processing' which precedes a response. In this account 'the present' perpetually recedes into futurity, one or more steps ahead us of us.[20] Further lags occur during normal processes of reflection and communication, or with contemporaneous events that are spatially distant.[21] Indeed, some events may be too rapid to be detected at all by the unaided senses. Thus Anderson suggests that "it is not until one perceives periods measured at longer than 130 milliseconds that the human assigns a temporality of past, present and future".[22] Events of shorter duration may have a 'before' and 'after', but no directly observable present. Such considerations give rise to the notion that <u>temporality itself may not be unitary, but hierarchical</u>, and may "accommodate several levels of causation".[23] This somewhat surprising line of argument receives support from several sources,[24] and requires further investigation.

It would be possible to conclude that we can know very little at all about pasts, presents or futures. But this is not the case. On the contrary, the major implication for the present work is that we can know very little of these <u>only insofar as they are considered in isolation</u>. When considered together in mutual interaction, they appear to be <u>mutually constitutive elements of consciousness</u>. As Watson says, "past and future tie themselves together in our minds to make the specious present".[25] The latter does <u>not</u> elude us precisely because we are unavoidably and continuously involved in innumerable past events and an infinite number of possible futures. The example of language itself is instructive. It is, perhaps, our greatest gift from the past, bearing symbolic riches from many cultures, some very ancient. Yet it mediates our understanding of the contemporary world, and, in turn, the quality of this understanding mediates the unfolding of futurity.[26]

Thus, while recognising that the conventional three-fold division of time has limitations, it is evident that attempts to 'study the past and future' are mutually supportive and complementary. Neither stands without the other. Without history, we would have no basis for thinking about, or understanding future alternatives. Without the futures

dimension, and the explicit clusters of goals, opportunities and dangers it holds before us, we would have no use for history, no guiding purposes by which to direct and organise our knowledge of it. 'The present' derives substance and meaning from both.

From these considerations it can be seen that historical research and futures research are by no means polar opposites. Indeed, the latter has been described as "….the forward-looking part of a continuum of thought, starting with the past and moving through the present into the future".[27] Both fields have much in common. As noted above, work within each is historically 'situated', and practitioners must always begin with 'the present'. Similarly, it should be re-emphasised that representations of 'past' and 'future' are incomplete, provisional, and open to revision and re-interpretation. Both are permeated by uncertainty, and information quality tends, as a general rule, to deteriorate steadily away from the present, merging finally into cosmological uncertainty. (See Figure 1.) Again, Briggs points out that the phenomena studied possess a number of common features. He writes:

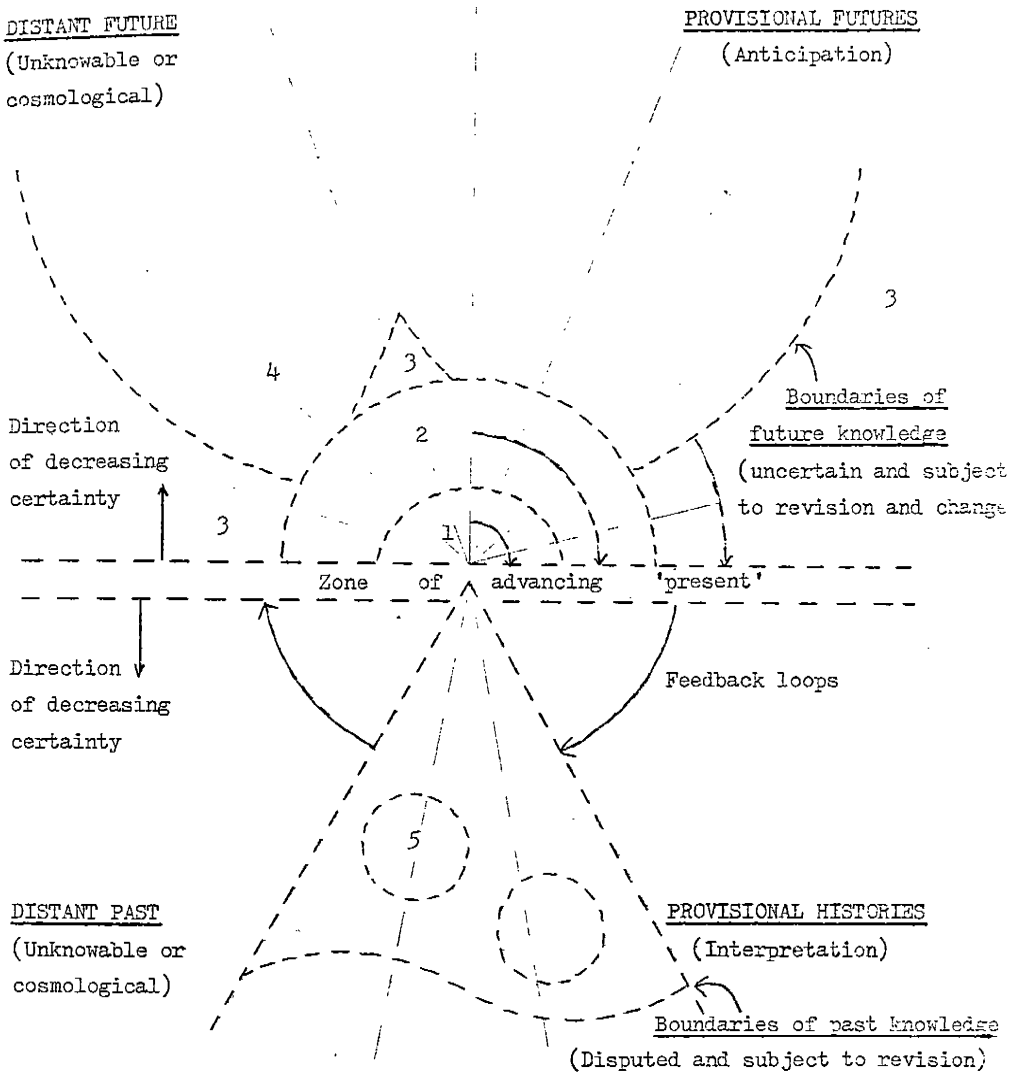
> both historians and futurologists (SIC) are concerned with change and resistance to change – which is achieved not by simple cause and effect, but by and through elaborate networks or webs of interrelated variables. In dealing with the processes of change….both….have to concern themselves with secular and cyclical changes, with the relationship between planned and unplanned changes, with varying contemporaneous rates of change, with constants, and, not least, with contingencies.[28]

Indeed, the universality of these phenomena have led some observers to call for the integration of these and other disciplines in a wider study of macro-change.[29]

On the other hand, due weight should be given to the differences between the two fields. As noted above, knowledge of the past may be <u>inherently</u> more reliable due to its association with widely observed events and their consequences. Similarly, historical research has the benefit of written accounts and physical artefacts which make past events more amenable to investigation. While many aspects of history remain ill-understood, contemporary people are, nevertheless, surrounded by the visible legacy of the past which they are bound to accept.[30] By contrast, possible futures appear insubstantial and require a greater 'cognitive investment' before the alternatives they embody become 'real' enough to stimulate action.[31] This helps to explain why the futures domain takes time to understand and apply. Yet from these differences Wagschal draws an interesting symmetry. In his view,

> the study of the past may begin with physical artefacts whose existence is indisputable, but it ends with histories whose veracity can never be known. The study of the future may start with speculation and imaginings, but it ends with real events that can be compared with our earlier forecasts. [32]

Figure 1: Schematic Overview of Correspondences Between Past and Future



Key

1. Zone of projections, trend extrapolations, predictions etc.
2. Zone of scenarios, gaming, cross-impact, Delphi etc.
3. Zone of major uncertainty, chance, unpredictability.
4. Unbounded zone of intuitive constructs and images.
5. Major "gaps", omissions, uncertainties in history.

Again it is clear that the two fields complement each other. One attempts to enrich our perceptions of past events and processes, while the other brings this (and other types of)

knowledge to bear on future choices, in order to exert greater control over the unfolding of future events.

Some of the relationships between histories and futures are depicted schematically in Figure 1. The lower part represents the former as they have been characterised above. The lacunae symbolise major gaps or uncertainties which have yet to be (or may never be) fully resolved.[33] The boundaries of historical knowledge are represented by a dotted line because they are subject to constant revision in the light of continuing research in fields as diverse as archaeology, climatology and cryptography. The further back in time people attempt to probe, the more uncertainties mount until they reach a point where they are faced with competing cosmologies. Hence for all practical purposes, the distant past may be regarded as unknowable.

'The present' is enclosed by a dotted line. This illustrates the contention that it extends beyond a fleeting moment and includes aspects of 'past' and 'future'. The feedback loops which links this zone with the other two represent the way that perceptions of past and future impinge upon the present and help to shape it. The upper part of the diagram attempts to summarise aspects of possible futures. Here the span of possibilities is wider (although how much wider is impossible to say). Here too, claims for accuracy, reliability and certainty decline progressively, although the gradient is steeper. This is reflected in four zones, each of which represents one or more types, or approaches to, futures knowledge.

Zone 1 represents analytical techniques which make various types of predictions on the basis of past trends.[34] These tools have value, but since they are susceptible to unforeseen changes, new data, discontinuities and so on, they are neither very reliable or far-reaching. Zone 2 is intended to cover those techniques that attempt to utilise, interrelate and structure analysis and intuition. They include scenario construction, gaming, simulation, cross-impact analysis and Delphic survey techniques.[35] They give access to a wider range of possible futures and longer time frames. Zone 3 is discontinuous, and is intended to represent possibilities that may, at any given time, not be accessible to human understanding or perception (eg due to chance or inherent unpredictability) and may be considered analogous to the lacunae in history. Zone 4 represents non-analytical images of the future which arguably reach out well beyond any presently known analytic techniques, and include dreams, altered states of consciousness, precognition, prophecy and speculative literature.[36]

The importance of non-analytical approaches to, and images of, possible futures will be discussed below. The diagram illustrates the contention that intuition, imagination, and other 'non-rational' capacities are less tied to 'the present' than are reason and analysis. Nevertheless, the most productive approaches are likely to draw upon elements from both.

It may therefore be concluded that any epistemological distinctions that may be drawn between perceptions of past and future should not obscure the fundamental complementarity and interdependence of each, or of the disciplines which focus upon

them. While certain differences between historical research and futures research have been noted, both serve similar human needs and contribute broadly to the same ends. Both attempt to enhance understanding and control, allow us to 'locate' ourselves in wider contexts and permit human beings to direct their future-shaping actions in the present. It clearly follows that curricula which are intended to help prepare individuals for living in the future will remain radically incomplete if they are not informed by an appreciation of the dynamic interaction of past, present and future.

3.1.3 The Futures Field: Structures, Themes, Critique

The futures field ranges across, and incorporates, many disciplines, perspectives and human concerns. Its structure is the subject of much debate. Indeed, one authoritative critic concluded that "no generally accepted definition of what comprises the futures field now exists".[1] In this respect it is not unlike the curriculum field which was described as a forum, within which a wide variety of approaches and perspectives find expression. Similarly, the two fields both deal with uncertain and open-ended problems.[2] Both contain strong normative and policy-oriented elements and, in this respect, tend to draw more upon the social sciences than upon the 'hard', so-called, 'natural' sciences.[3] Again, both are concerned with relating theory to action and attempting to understand and guide change in complex systems.[4] Yet here the resemblance ends. While curriculum debates centre upon educational problems, the futures field range across many other areas of enquiry and attempts to address a correspondingly greater variety of problems.

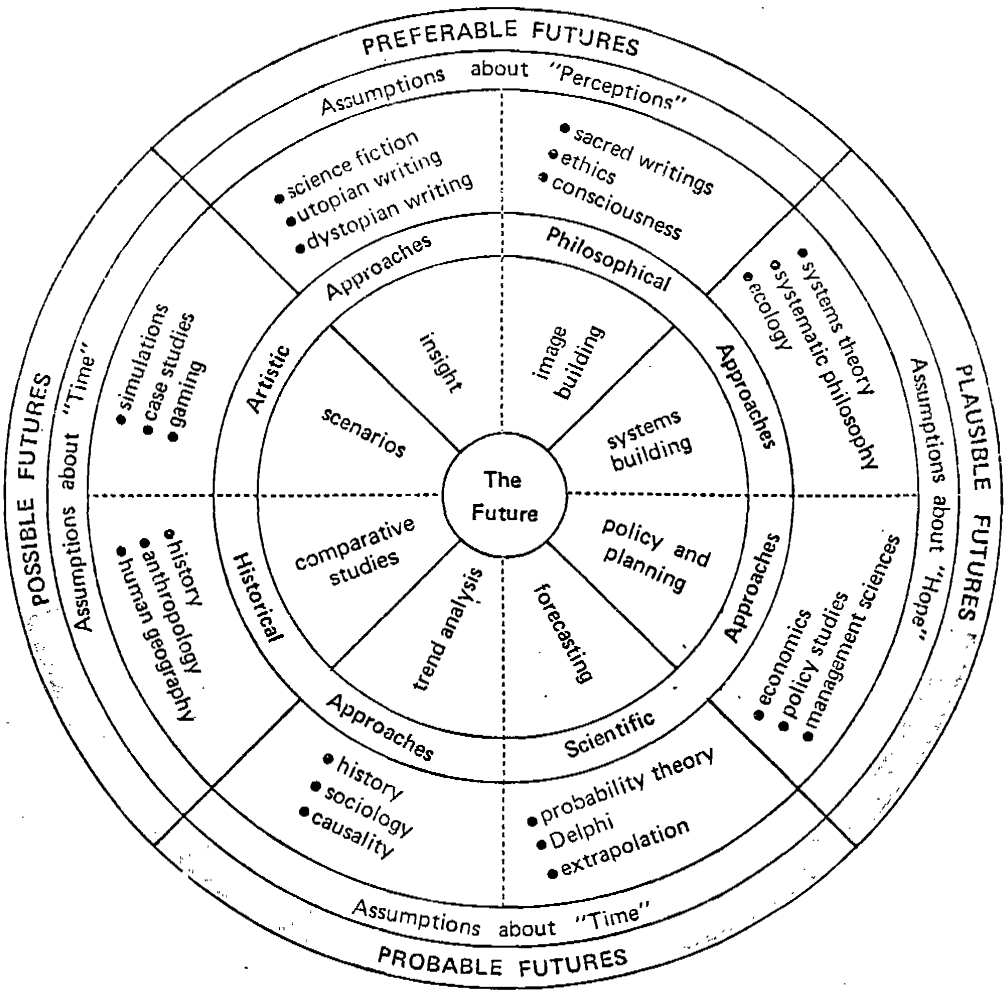
The seemingly unbounded nature of the futures field lends it an openness that some observers find exhilarating, regarding this as a positive asset. Indeed, it is probably true that the bringing together of previously unrelated ideas within a 'futures' context encourages innovative thinking and behaviour.[5] But this very openness and lack of a more explicit disciplinary framework has also created problems of identity, uncertainty regarding objectives and, in the view of some, impeded the further development of the field.[6] Consequently, various 'maps' or 'models' have been proposed which attempt to set out a clearer structure. Three of these are reproduced below.

Even a brief comparison of these examples shows how difficult it is to characterise the field concisely. To some extent this arises from inherent complexities, but it is also a result of the differing aims, biases and intentions of different observers. Thus Henchey's model seems the most comprehensive, but the symmetry is very artificial and it contains numerous ambiguities. For example, in the light of the foregoing, 'history' takes on a greater importance than is represented here. One might also question if 'artistic' and 'scientific' approaches can be so nearly isolated,[7] or if science fiction can be located under preferable futures.[8] Amara's map is clearer and certainly more analytical, but it does impose a static nearness on the field which risks reifying categories and neglects interactions with other related activities.[9] The third example is useful in illustrating some aspects of the master concept of 'alternative futures' (see below), but it is based upon two simple dichotomies (among many possible ones), and assumptions about the primacy of technology as a force in social change.[10]

It may be concluded that no single characterisation of the field will adequately represent its multi-levelled, transdisciplinary structure. Rather, each will illuminate certain aspects of it according to the purposes of different observers. Here the concern is with essentials and it therefore makes sense to restrict attention to central characteristics and themes.

Figure 2

Henchey's Framework for the Study of the Future



World Future Society Bulletin, September-October 1977

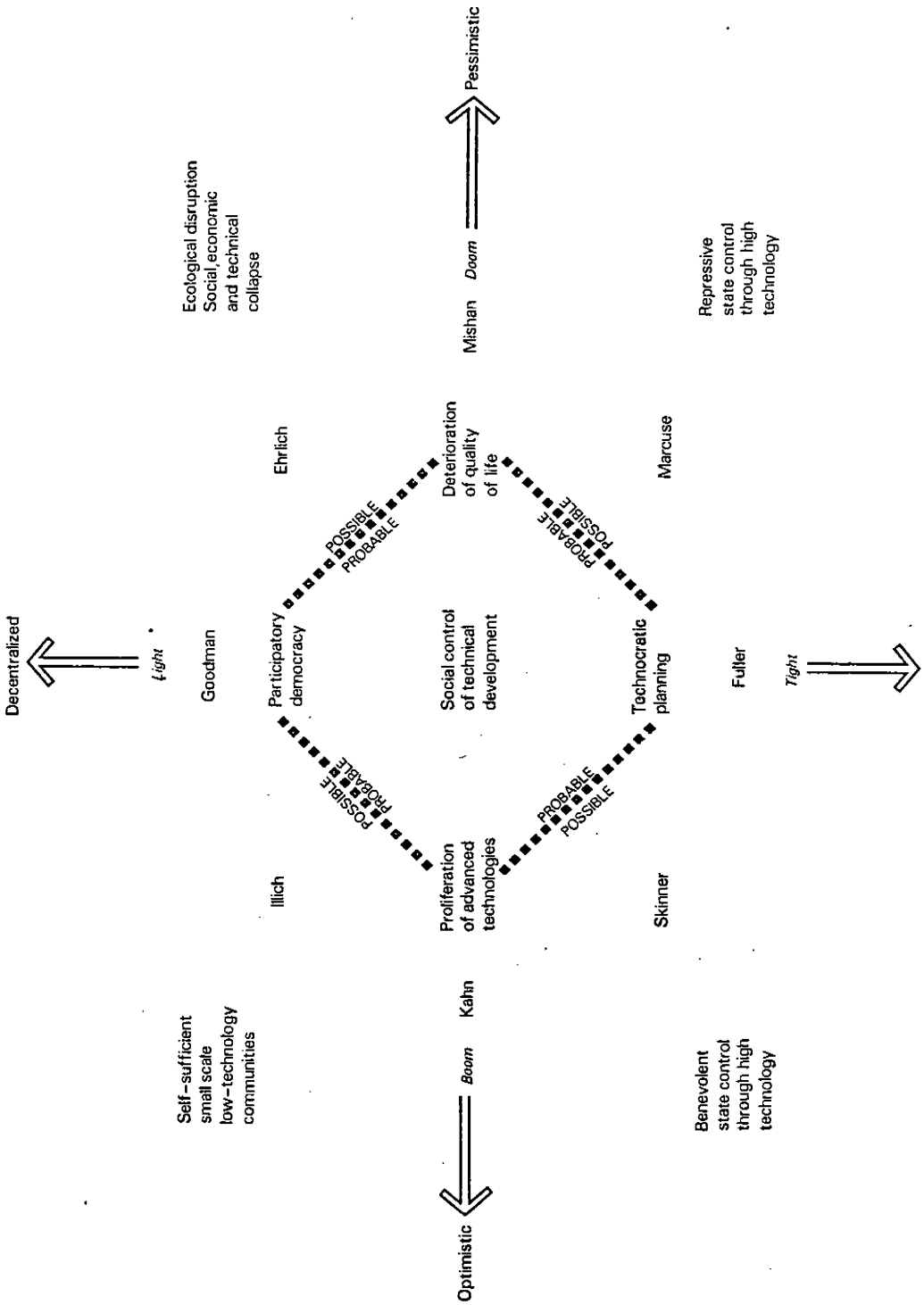
Table 2

Amara's Map of the Futures Field

Summary Map of the Futures Field			
Premise and goal stressed	Possible	Probable	Preferable
Objectives	Open up	Analyze	Examine preferences
	Alert	Evaluate	Win support
	Stimulate	Systematize	Guide choices
Roles	Image-driven	Analytically-driven	Value-driven
Tools	Perceptual	Structural	Participative
Practitioners	Visionaries	Analysts	Charismatic leaders
	Geniuses	Methodologists	Social reformers
	Writers	Futures researchers	Writers
Organizations	None or One-person dominated	Think tank	Advocacy Group

The Futurist Vol.15 No.1, February 1981

Figure 3: Alternative Futures Matrix



Cross (et al) 1975

Thus, while remaining aware of the difficulties of drawing unambiguous boundaries, it is useful to distinguish between futures research, future studies and the futures movement. None of these exists as a monolithic whole, but rather as part of a wide spectrum of activities which are mutually interactive and draw on a range of intellectual, institutional and cultural resources.

Figure 4 illustrates how various activities and influences which impinge upon, or constitute, the futures field, can be located on a continuum ranging from predominantly 'hard' (often quantifiable) approaches to 'soft' (usually qualitative) ones at the other extreme. In this account, many of the more formal and institutionalised approaches to futures research lie at the 'hard' end of the spectrum since these are often based on the reproducible, quantitative, methods of the natural sciences.[11] Yet a definite shift has occurred in recent years with prediction and quantification per se giving ground to more value-oriented and qualitative approaches, or at least these aspects of formal research receiving more explicit attention.[12] There has also been a growing demand for "pluralistic" research[13] to compensate for the early dominance of powerful and vested interests in the field. (See below). Thus today, while a good deal of futures research remains linked with government agencies, large corporations and international bodies (such as the O.E.C.D.)[14] there is evidence of burgeoning interest in areas such as biofeedback,[15] consciousness research,[16] and the development of intuition.[17] These are primarily qualitative in nature and linked more with the development of human potentials than with the exercise of power and instrumental control over resources.

Future studies is a term which is sometimes used to designate the whole field. It is more accurate, however, to regard them as occupying the 'middle ground' in that they draw both on research and the wider movement for theory, content and inspiration.[18] The complex of ideas, images and purposes received (and generated) here are commonly reinterpreted and communicated back to other parts of the field and to the wider public outside it. Woodell's broader conception of future studies as a discipline, a methodology and a perspective is analytically defensible, but it glosses over these relationships.[19]

The futures movement incorporates aspects of the other two areas but it is primarily action-oriented.That is, it focuses upon 'change' at all levels: social, organisation and individual. As noted in section 2.1, it draws on a very diverse set of grass-roots activities and innovations, and represents a source not only of pragmatic adjustments to changing circumstances, but also of new (or renewed) guiding images and myths. An important example of the latter is the "re-valuation of the feminine".[20] Another is the "new evolutionary mythos", which sees mankind cast in the role of "co-creator" within the evolutionary process.[21] Springing from this almost anarchic variety are a number of more formal lobbies, societies and networks. These are too numerous to examine here, but two examples illustrate differences of approach on either side of the Atlantic, differences that will be considered in more detail below. The Washington D.C. based World Future

Figure 4

The Futures Field: A Spectrum of Activities and Influences

‘HARD’ POLE (Restricted)	Predominantly **FUTURES RESEARCH** (Major knowledge –seeking focus)	Prediction, Trend Extrapolation.
		Model Building, Simulation, Systems Analysis.
		Economic and Technical Forecasting.
		Technology Assessment, Policy Studies
		Planning.
	Predominantly FUTURE STUDIES (Synthesis, criticism and communication)	Delphic Studies.
		Media Studies, Hard (‘Technological’) SF.
		Futures Education, Academic Writing and Criticism, Communication.
		Scenario Writing.
		Utopian and Dystopian Speculative Fiction.
‘SOFT’ POLE (Open)		Anthropological Speculative Fiction.
	Predominantly **FUTURES MOVEMENT** (Normative: stimulating, reconceptualising and leading (?) “change”)	Human Potentials Movement.
		Associations, Networks and Lobbies.
		Theory and Practice of Alternative Lifestyles.
		‘Brainstorming’, Free Association.
		Visionary and Opinion-Leading Literature.
		Altered States of Consciousness: Dreams, Intuition, Meditation.
		Eastern Religion, Eschatology.
		Fantasy

(N.B. It must be emphasised that the above attempts to provide only an overview of the field. Examples listed are representative, not exhaustive. Similarly, positions upon the spectrum may vary according to numerous factors. The inclusion of fantasy is explained in section 3.2).

Society (WFS) is grand (even grandiose) in conception and approach. It describes itself as a "non-profit association of about 50,000 people in some 80 countries". Its major goals are "the development of a World Future Network….the encouragement of a new vision of a better future….(and)….the dissemination of the futurist perspective".[22] The U.K. based Futures Network is much less ambitious. It simply describes itself as "an informal association of people interested in futures studies and the use of futures thinking".[23] Its major aim is to facilitate communication between people already engaged in futures-related activities, and its membership list of some 800 members provides an interesting sample of the wide range of interests, organisations and disciplines which cluster around the margins of this area.

One way, therefore, to approach this structural diversity, is to regard the field as being comprised of three broadly, interacting elements. First, a knowledge-seeking component based primarily in various forms of futures research (and associated disciplines). Second, a communication-oriented component founded largely in education, criticism and writing. Third, a strongly normative, change-oriented component arising from a varied, globally distributed social movement.This is not to suggest that each part of the field contributes freely to others. On the contrary, a major implication of this view is that dissonances, ambiguities, differences of interest and approach may all impede communication and the development of a more unified structure.[25] This, in turn, almost certainly affects futurists' claims to intellectual and institutional status. Thus at this time the utility of a 'futures perspective' may derive less from the characteristics of its parent field than from the selective deployment of resources available within it, and the linking of these with widely-recognised problems. Arguably the most important of these resources take the form of a set of ideas, or central themes, which permeate the field, and it is to these that this study now turns.

Amara distinguishes six fundamental objectives within the futures field. These are:

> first….to identify and examine alternative futures…..second…. to characterise the degree of uncertainty associated with each….third…..to identify key areas which are precursors or warnings of particular futures….fourth,….to examine a variety of 'if-then' sequences….fifth….to acquire an understanding of the underlying processes of change….(and) sixth….to sharpen our knowledge and understanding of our preferences.[26]

Elsewhere, the same writer offers a more concise formulation of the "three basic questions of the field". These are, "what possibilities about the future exist? What do we know about them? What do we prefer to happen?"[27] It is evident that these three questions correspond closely to the frequently used distinctions between possible, probable and preferable futures (ie what could happen, what is likely to happen and what should happen). In this way 'the future' is conceived as a span of possibilities which invite imaginative exploration, analysis and the exercise of choice. Hence the 'master concept' of the field is almost certainly that of alternative futures. While this notion may have become familiar through over-use, and even clichéd, it does contain radical

implications for existing social forms, economic structures and power relationships, particularly where these are perceived to be oppressive or short-sighted. As Goldthorpe notes:

> to the extent that alternative futures really are spelled out (not just alternative forecasts or alternative 'solutions') to that extent too there is revealed the true range of socio-political choice, the degree of existing social conflict, and the possibilities for future action.

Indeed, in-depth studies of 'alternatives' may reveal the contingency of 'the present' and render taken-for-granted assumptions problematic. This may help explain why the rise of future studies appears to be stimulated more by autonomous, grass-roots initiatives than by centralised direction.

The perception of alternatives is closely associated with the idea that 'the future' arises both as a result of human action and failure to act. This is well expressed by Cornish, who writes:

> if there is one key idea in today's futurism it is this: the future does not just happen to us; we ourselves create it by what we do and what we fail to do. It is we who are making tomorrow what tomorrow will be. For that reason, futurists think not so much in terms of predicting the future as in terms of trying to decide more wisely what we want the future to be.[29]

Thus futurists emphasise the unavoidability of consequences and therefore of human responsibility for what comes to pass.[30] Indeed, Wooddell sees this as one of the distinguishing features of a futurist perspective.[31] The assertion, however, that we simply 'create' the future is difficult to sustain and reflects a tendency to overrate human capacities, and hence the degree of responsibility people may be expected to exercise.

There are many reasons why freedom to 'create' the future may be limited. Among these is the influence of 'shaping forces' over which human control may be problematic, or at best, limited. This is implicitly recognised by Kauffman who distinguishes four basic assumptions under which futurists are held to operate. These are:

1. The future which occurs is determined partly by history, chance and human choice.

2. There is a range of alternative futures. History and physical reality determine which futures are in that range. Chance and human choice determine which will happen.

3. True freedom of choice only exists when one understands the entire range of options and the consequences of each.

4. The purpose of futuristics is not to predict but to improve the understanding of alternatives and the role of chance and choice in achieving or avoiding any futures.[32]

Here Kauffman indicates that 'choice' may be limited by other factors. But it is doubtful if "true freedom of choice" is attainable if it is first necessary to understand "the entire range of options and the consequences of each". Firstly, de-contextualised metaphors of this kind are too abstract, too remote from 'life problems' to carry much meaning. Secondly, we must doubt if such 'complete' knowledge is even possible, given the inherent uncertainty regarding knowledge of the future and the impossibility of defining anything approaching an "entire range of options". Nevertheless, Kauffman confirms that the futures field is not, as is commonly thought, primarily concerned with prediction, but with understanding and elucidating choices. Indeed, if alternative futures is its master concept then this may be considered its 'central project'.

Associated with these themes are notions of participation and purposive action. The former found powerful expression in Toffler's concept of 'Anticipatory Democracy',[33] and in a later volume of papers collected under that title.[34] If human choice is a powerful, future-shaping force, then, futurists assert, active participation in social decision-making is vital. This is an ideal that is shared with a number of groups, particularly those concerned with the social control of science and technology.[35] But in situations where power (and access to information) is unevenly distributed, the extent to which people can participate meaningfully in 'creating the future' necessarily remains uncertain. Indeed, for 'participation' to become more than a remote ideal, structural changes will be needed, not least in education.

The idea of purposeful action has been even less well developed within the field, although Wooddell sees it as another major theme. He quotes Flechtheim to the effect that "action is the watchword of many of those who take an interest in the future".[36] But the nature of such action is unclear, and the lack of attention here to its philosophical and sociological grounding is conspicuous. More commonly, it is associated with the often crude, but important, idea of urgency: "if one does not act in time, one loses choice", Wooddell writes.[37] Toffler combines several of these ideas in a passage which shows how readily they may be overstated:

> this, then, is the ultimate objective of social futurism, not merely the transcendence of technocracy and the substitution of more human, more far-sighted, more democratic planning, but the subjection of the process of evolution itself to conscious human guidance. For this is the supreme instant, the turning point in history at which man either vanquishes the processes of change or vanishes, at which, from being the unconscious puppet of evolution he becomes either its victim or its master.[38]

Here is an expression of futurist confidence at its most extreme. The creation of the future is to involve the conscious control of evolution and 'change' (although how the latter may be 'vanquished' is wholly obscure). Clearly, the notion of 'change' is central, but it

lacks force and analytical clarity. In fact, Toffler's proposals beg so many questions that they can in no sense be regarded as a program for action. However, the view that we have arrived at 'a turning point in history' is certainly one that is widely shared.

Barbara Ward, who combined futurist and world development perspectives, considered that "we are….in a most fundamental sense, at a hinge of history".[39] While the metaphors vary, the underlying belief that mankind has reached a crucial, and in many ways unparalleled, period in history, has many supporters. Among futurists these include Cornish,[40] Leach,[41] Harman,[42] and Henderson[43]. The latter two lend support to the idea that we are witnessing a transition from one form of society and world-view (often labelled 'industrial') to another (frequently 'post-industrial'). Expressed in this way the sense of urgency and the belief that the present period holds unique challenges and opportunities can be transferred into 'powerful shaping ideas', some of which will be utilised below.

The futures field is also notable for its attempt to explore and combine long-term and global perspectives. The former is associated with various forms of futures research but it is likely that the existence of intuitive images derived from speculative literature is crucial here, (a theme to be developed further in the following section). Perhaps the most frequent justification offered for the development of long-term perspectives is that they allow problems to be identified long before they actually arise. 'Preaction' to modify their effects is then theoretically possible. But immediate pressures and the restricted time-frames characteristic of many decision-makers in society usually ensure that this possibility is seldom translated into action. The consequences are wryly summarised by Hall, who writes,

> the countries of Europe devote countless resources to grappling with the problems of the present – problems that sometimes appear to be overwhelming them. They devote miniscule amounts, in comparison, to trying to anticipate problems before they arrive. That, perhaps, is why they seem to be overwhelmed.[44]

Clearly, strategies for mediating between short-, and long-term frames of reference are needed, but, apart from isolated examples like the establishment of the Office of Technology Assessment (OTA) in America, futurists have had little success in getting the principle more widely accepted. Indeed, some suggest that the growing convergence of short-term pressures makes the outlook for long-term planning and forecasting increasingly bleak.[45]

This study explored attempts to develop perspectives on global futures in section two, and the variety of viewpoints evident there emphasised the complexity of such a task. Clearly then, any attempt to combine global and long-term perspectives is faced with numerous difficulties. Not the least of these is the amount, type, quality and availability (or otherwise) of data involved, and the problem of 'processing' this in any meaningful way. It is perhaps at this point, where reason and analysis reach their limits, that 'visions' of possible futures begin to operate. Barbara Ward's 'Progress for a Small Planet' may,

no less than Marilyn Ferguson's more speculative 'Aquarian Conspiracy', be viewed in this way. But such visions seem to arise from outstanding individuals, and the slogan of the First Global Conference on the Future (Toronto, 1980) "think globally, act locally" remains problematic, given the relatively power-less and information-poor situation that most people find themselves in. Again, it is evident that the futures field blends into other areas of concern, ie, the need to reform existing political structures and provide freer access to information.[46] Again, too, it is evident that the field may need to reinterpret its aim in relation to such wider issues, if it is to enlarge its constituency.

Another theme is the importance accorded to images of the future. Much of the interest in this area stems from utopian, and, more recently, dystopian literary traditions, from whence many well known images of possible futures have sprung.[47] The seminal work on this subject is widely considered to be Polak's 'The Image of the Future', translated and later summarised most ably by Elise Boulding.[48] Polak's basic thesis was that a society's ability to 'image' its future in eschatological and utopian terms powerfully affected its ability to survive and prosper. Boulding went on to develop the question of whether "the West" had lost its "imaging capacity" in these terms, and whether some contemporary "futurologists" had, by their early association with linear extrapolation, social planning and "technological fixes", actually assisted in this process. She did, however, also identify a "commitment to otherness" among "humanist, participatory, evolutionist, ecological and revolutionary futurists" which "promised to extend the range of futures portrayed for modern man."[49] Indeed, since her account was written, these tendencies have continued.[50]

Since Polak's day, this aspect of the futures field has received considerable attention from literary critics[51] and futurists. Huber,[52] and Wooddell,[53] provide overviews which suggest that the area remains an important one, but one in which many questions remain unresolved. Singer's contention that "the future-focused role image is our self image projected into the future, and lends meaning to what we do in the present"[54] receives qualified support, but Wooddell also recognises the difficulties of defining and measuring such images. This is particularly evident on the social level where, he suggests, analysis "is certainly more manageably, and perhaps only possible from the historical vantage point".[55] Nevertheless, valuable work has been done by Bell and Mau (et al).[56] and their framework for the "Analysis of Time Perspectives and Images of the Future", while incomplete in some respects, is a useful contribution to the field.

Wooddell mentions two further themes which he considers part of a widely shared 'futures perspective'. These are holism', understood as the attempt to view things "as a whole"; and a "concern for stakeholders".[57] He links the former with systems theory and the ecology movement, both of which stress the importance of locating problems within their wider contexts. But it also acts as a guiding metaphor in other areas (eg health, see Albright & Albright, 1981). However, the concept is not well elaborated in the futures literature (with the possible exception of Jantsch and Waddington, 1976) where 'global' and 'holistic' tend to be used interchangeably. The concept of 'stakeholders' is an important one, but it will be suggested below that certain features of American approaches to social theory tend to 'defocus' its deeper meanings. In Wooddell's view

the concept indicates the way that "all human beings" can be considered to have "a stage or a share in either action, an event, or the consequences of (these)". It therefore is necessary to anticipate "how an action will affect human beings",[58] he adds. Yet the truth in this remains trivial at this general level: to gain greater force it needs to be operationalised and put to work in concrete situations. With the exception of a small number of writers on the fringes of the futures field (Michael, 1976; Schon, 1971), futurists have not done this. As Fletcher confirms, the concept has not been taken up properly within the field.[59] Instead, writers and researchers have tended to 'explore', 'map' and even 'design' their own preferred futures with too little regard for the constraints facing others. This anticipates some of the criticisms that will be encountered below, one of which is that futurists have generally failed to appreciate the 'embeddedness' of social life and sources of continuity which reduce the impact of 'change'.

It is now appropriate to summarise some of the central guiding concepts and themes that express the major tenets of the field. These are as follows:

1. There exists a wide variety of ALTERNATIVE FUTURES at all levels
2. There may be broken down into POSSIBLE, PROBABLE and PREFERABLE FUTURES
3. This implies a need for CONSCIOUS CHOICE, INFORMED PARTICIPATION and PURPOSIVE ACTION.
4. 'The future' is NOT PREDICTABLE OR PREDETERMINED, but can be influenced by individuals.
5. Human actions and decisions (or the lack of these) SHAPE 'THE FUTURE'.
6. The present period of history is UNIQUE, and CRUCIAL FOR ALL FUTURE GENERATIONS.
7. It is necessary to exert more deliberate human CONTROL OVER CHANGE PROCESSES.
8. In so doing, 'PREACTION' is preferable to CRISIS LEARNING.
9. HOLISTIC, GLOBAL AND LONG-RANGE PERSPECTIVES are necessary.
10. IMAGES OF 'THE FUTURE' appear to guide actions in 'the present' and affect what seems to be possible in 'the future'.

Clearly, these ideas rest upon an extensive network of assumptions and premises, not all of which can be examined in detail here. But following Henchey,[60] it may be noted that they include views of: the meaning of the present, the nature of 'change', the level of confidence one may have in 'the future' (including optimism or pessimism), the possibility (and meaning) of control, the style of intervention favoured, the nature of man, the reliability of knowledge, the importance accorded to values, science and technology, and suitable criteria of significance. Evidently the span of assumptions operating here is wider than that which T.W. Moore argued applied to the curriculum field. (See 1.1.1) A further complication is that if one compares different attempts to set out 'the basic assumptions and principles of the futures field', there appears to be little overall agreement about what these are.[61]

The fact that a high level of consensus seems to exist with respect to the central concerns of the field, while no such agreement exists with respect to basic assumptions and approaches is not surprising. But it does expose what some consider to be its greatest weakness: the lack of an overall, shared foundation in theory. This, it may be argued, "prevents futurists from recognising….different premises, objectives and roles….and….contributes to….(their) confusing one set of objectives with another".[62] According to Nelson it also leads to a failure to distinguish between faddish and more substantive concerns.[63] Yet as will be suggested below, the search for 'a more coherent structure', for standards, norms and greater certainty, can be viewed as a reflection of a now discredited model of science, a model which many have turned to in a mistaken search for legitimation. At this point it may be suggested that it seems unlikely that any field dealing with practical, uncertain and value-laden problems could possess a single, unified theoretical base.

Thus, as with 'curriculum', so too with 'futures'. Both represent a forum, a kind of extended conversation, drawing on many different frames of reference, serving many interests and needs, throwing up new orthodoxies, contradictions and heresies. Hence the concern here is not to evolve some 'grand design' for the futures field, but to draw upon its symbolic and intellectual resources, to modify them where this seems to be necessary, and to apply them to the problems of curriculum renewal. Having surveyed some of its central themes, it is appropriate to develop a broad critique of the field. It is important to note, however, that this study does not attempt to be comprehensive. Others have attempted this, and there is no need to duplicate these efforts. (See Lindstone & Simmonds 1977, Ferkiss 1977 and Whiston 1979.) The intention here is to concentrate on those difficulties which arguably rob the field of much of its potential effectiveness, and which a critical approach may attempt to resolve. These include problems of presentation and language, of ideology and bias, and the extent to which an internal tradition of criticism may already be developing.

It is evident from the foregoing that the futures field is nothing if not ambitious. Consider: it tries to monitor global trends, to act as a societal 'early warning system', to explore and illuminate a bewildering range of possibilities and choices, to influence public and private decision-making, to disseminate its ideas and conclusions as widely as possible – in short, to help 'create' the future. In view of the enormity of this self-imposed task it would be reasonable to expect modest, self-effacing approaches, largely free of overblown and distracting rhetoric. But, as the Toffler quotation above showed, this is not always the case. Indeed, futurists often appear to be so convinced of the importance of their messages and the correctness of their visions and prescriptions, that they pay little heed to the way these are presented to the wider public or to the nature of the demands they frequently contain.

According to one prominent futurist the central aim of the futures field is (or should be) "to build the great future that we all know is possible". He continues, "if we can create believable dreams of a better future world, then we can build for that world, for we live in an age when a peaceful, prosperous and happy world is a genuine possibility".[64] Another, much reprinted, paper expressed the view that "the only possible conclusion is a call to

action". It continued, "the task is clear. The The task is huge. Time is horribly short ….. today the whole human experiment may hang on the question of how fast we now press for the development of a science for survival".[65]

We need not doubt that motives of those who write in this vein, nor their evident sincerity. Indeed, they may well give voice to widely shared concerns. But such statements seldom make clear how, or in what sense, people may begin to 'take control' over subsequent events, or how they might act to avert threatened 'crises'. Regardless of whether the view expressed is optimistic or pessimistic, whether the task is of creating Utopia or merely avoiding Dystopia, what is conspicuously absent is the recognition that people are being asked to co-operate in a series of more-or-less well-defined tasks which lack historical precedent or contemporary sanction. The implicit view of both individuals and societies is an underdimensioned one that glosses over, or ignores, so much of the substance of social life that 'calls to action' of this kind virtually ensure their own extinction.

'The future', we recall, is inherently uncertain and conditional. Its relation with 'the present' is problematic and complicated by a host of social, cultural and ideological factors. The sense in which it may be 'built' or 'chosen' needs to be clarified by those with ideas about what 'the future' should be like. But this seldom happens, in part because men who are necessarily embedded in their own historicity cannot aspire to the God-like powers which would be needed.[66] As Radnitzky puts it, "what is 'irrational' in human history is that men make their history but….do not know the history they make….they have not (yet) been able to make it with full consciousness".[67] This is the dilemma facing futurists, and indeed all others who would wish to direct 'change'. To build a "science of survival", or design a "peaceful, prosperous and happy world" not only begs a number of very important questions about just what might be meant by this, it would also require the development of "full consciousness" to unknown, and perhaps impossible heights. In other words, while futurists' intentions may be laudable, they can embody impossible aims. As McDermott has noted, the grand ambitions of the futures field are always unfulfilled because they overrate our knowledge, and our capacity to act freely.[68] Clearly the formulation and presentation of futurist concerns needs to draw on more realistic notions of what is possible, more adequate conceptions of the nature of social life and richer conceptualisation of the nature of 'change' and the barriers thereto.

Hence, the presentation of futures ideas (and indeed, of the field itself) has been marred by a tendency to exaggerate, by an unfounded, even naïve, view of human capacities and by overoptimism regarding the potential for social change. Indeed, "overpromising" is a common failing not only for 'inspirational futurists' but also at the research level. Amara confirms that researchers are prone to play down the description of 'possible outcomes' in favour of 'most likely ones' for reasons that are often extrinsic to the research problem. In part, this is due to the 'market pressures' exerted by clients who have their own strong preferences.[69] More importantly, it is becoming realised that the researcher's own subjectivity and institutional location makes the framing and definition of futures problems a major problem in itself.[70] But there is no evidence that the problematics of this important area have yet been explored in any depth.

Amara[71] and Jones [72] make a number of useful suggestions for improving techniques of presentation. Both stress the need for conceptual explicitness and analytical clarity. Both recognise that there are limits to certainty and that futurists should therefore confine themselves to modest and supportable claims. But their attention focuses primarily upon futures research. What the field as a whole seems to lack are strategies of presentation and communication that build upon peoples' existing 'life worlds', their skills, interests and perceptions. Indeed, the possibility of dialogue is pre-empted whenever future options are framed and presented as pre-given 'alternatives' which invite selection, but not revision and reinterpretation.[73] The taken-for-grantedness and lack of reflexivity that characterises very many futurist prescriptions in part arises from theoretical inadequacies, but it also reflects an inadequate understanding of the nature of language.

As noted above, the rapid growth of futures research in the post-war period was intimately connected with the instrumental necessities of the cold war, commerce and government. Since then, the reductionist tendencies inherent in these applications have been soundly criticised,[74] and the above has recognised the growth of interest in more qualitative approaches. However, the 'one-dimensional' use of language within the field remains an unresolved, and largely unexamined, problem. That is to say, the literature and rhetoric of the field is replete with examples of ideas, assumptions, claims and concepts presented 'at face value', in a wholly unproblematic manner, as if language bore a clear and unambiguous relationship to the 'real world'. This is particularly true of American writing where it is possible to trace the influence of dominant empirical-rational social science traditions.[75] Since America is perhaps the major centre of futures-related activities at every level, these tendencies have pervasive effects. (It will be seen below, for example, that they have influenced the character of futures education in the U.S.A.)

That this problem is not restricted to the futures field is confirmed by Carey who writes,

> European and American work derives from quite different kinds of intellectual puzzles and is grounded in two different metaphors for communication…. American studies are grounded in a transmission or transportation view of communication. They see (it)…as a process of transmitting messages at a distance for the purpose of control….By contrast, the preponderant view of communication in European studies is a ritual one: (it) is viewed as a process through which a shared culture is created, modified, and transformed.[75]

While we should beware of drawing exact parallels, it is evident that there are analogous differences of approach in the futures field. American work is characteristically broad in scope, optimistic in tone and ambitious in character. Its emphasis on 'building the future' and exerting 'greater human control over change' reflects the emphasis noted by Carey. European work, on the other hand, tends to be rather more modest, equivocal and frequently pre-occupied with substantive problems of understanding and interpretation. (Indeed this is one reason why futures education has developed much more slowly in Britain.)[76] Thus the overwhelming majority of American futurist writers pay insufficient

attention to their use of language. Concepts such as 'change', 'control', 'choice' and 'action', each of which presupposes a theory of some kind and a network of assumptions, are used unproblematically and therefore superficially. There are, of course, exceptions. But the writer who admits that "almost every facet of change processes is obscure", is rare.[77] Much more common are statements such as the following which conflate claims, theories and assumptions in a wholly undiscriminating manner. It is therefore possible to read that "the steam engine of the industrial revolution made the human muscle obsolete, but the microprocessor is initiating the obsolescence of the human brain", in one of the most prominent futurist journals.[78] Leaving aside the contentious nature of the claims embodied in the statement, it is evident that the writer has attempted to simplify complex problems to the point of caricature. The result is a crippling incoherence and a failure to communicate. That this is not an isolated example may be seen by the following extract from the very popular and influential work entitled 'Future Shock', wherein the author claims that:

> in the three short decades between now and the turn of the next millennium, millions of psychologically normal people will experience <u>an abrupt collision with the future</u>. Affluent, educated citizens of the world's richest and most technically advanced nations, they will fall victim to tomorrow's most menacing malady: <u>the disease of change</u>. Unable to keep up with the supercharged pace of change, brought to <u>the edge of breakdown</u> but incessant demands to adapt to novelty, many will plunge into future shock. For them the future will have arrived too soon…..(My emphasis.)[79]

One of the startling features of this passage (and others like it) is that it underrates sources of stability and continuity in human culture. Another is the way that the author has assumed that he somehow can stand outside of, or above, the processes he is attempting to describe. Again, 'change' is portrayed as an irresistible and wholly external force that has individuals 'shocked' and incapable of effective responses. Even without these profound defects, the presence of tortured metaphors ("collision with the future", "disease of change"), would suggest that something is badly wrong. Clearly, the whole passage, and indeed the 'future shock' thesis as a whole propounds unacceptable views of language, culture and 'personal agency'. Yet the book achieved 'best seller' status on both sides of the Atlantic, and many of its assumptions are clearly present in the futures literature.[80]

It goes without saying that writers of greater insight and ability avoid many of these pitfalls.[81] But, sadly, it remains true that most futurist writers show little awareness of the complexity of language, of its permeability, the ways it is interwoven with inherited symbols and other cultural forms, of how it partly structures our understandings, both revealing and concealing aspects of the 'real world'.[82] Thus, in addition to the points made above, it can be suggested that critical futures study should recognise that <u>language mediates the interpretation of experience, and is constitutive of understanding. Normative statements inevitably reflect the preferences and interests of those who make them.</u> This makes the possibility of objectivity and value-free knowledge extremely problematic, and cuts the ground from under the feet of anyone who, implicitly or otherwise, assumes an

inherent superiority of viewpoint. It also points the way toward metaphors for communication based not on control and persuasion but on negotiation and dialogue.The grounds for the position are sketched out below. A preliminary consideration of ideology and bias is the next step in this enquiry.

A full treatment of 'ideology' in the present context is precluded by limitations of space and the extensive nature of debates on that subject. But it is possible to outline some of the problems that bear on this. Prominent among them is the way that claims to 'scientific' status have been made within the field, partly to gain greater legitimation and 'respectability'. This ideologically 'loaded' tendency is damaging because it misrepresents what futurists may aspire to achieve, and, when such claims embody notions of 'objective' and value-free knowledge, may serve to obscure the political and ideological dimensions of futures problems.

What is particularly significant about the persistence of this tendency is not that is has failed to attract criticism from within the futures community, but that this criticism has been weakest and least effective in the country where this work is strongest (ie America). Thus we find prominent American futurists expressing hopes of a "general science of the future", claiming that one of the largest futurist organisations is "nonpartisan and ideologically neutral" and suggesting that "futurology … must turn to the university to attain the status of a science".[83] That this search for legitimacy by an appal to 'science' and 'ideological neutrality' is fundamentally mistaken seems to be more clearly recognised by European writers. Miles, for example, shows how these claims are scientistic in character and essentially self-serving.[84] American criticism on the other hand has tended to be less incisive, and it is important to try to understand why this is so.

Hoos is one American writer who developed her critique of 'scientific' and quantitative approaches to forecasting by concentrating on notions of reductionism and bias. She suggested that the use of techniques "encompassing systems analysis, cost/benefit analysis and program budgeting" led researchers to overlook their own biases and to simplify problems, emptying them of much of their human significance. "The avalanche of figures", she wrote, "… present a simplified and often distorted view of reality because only the quantifiable is taken into account; the non-quantifiable, which may be crucial is systematically excluded".[85] Hence, she concluded, "the data base (of futures research) is more often than not its Achilles' heel".[86]

It should be bourne in mind here that these comments apply mainly to the 'hard' pole of the research spectrum that may be less dominant than it once was. Similarly, quantification per se is now more commonly regarded as one tool among many others. (See Linstone & Simmonds, 1977.) Nevertheless, the risk of reductionism remains whenever aspects of the 'real world' are taken from their living context and translated into computer models, simulations and exercises in systems analysis. Hoos' critique therefore remains relevant, but it locates the source of the problem in techniques and methodologies, rather than in the underlying empirical/analytic traditions of research. Until these are complemented by critical/hermeneutic insights it must be doubted if problems of reductionism and bias can be adequately defined, let alone resolved.

Other observers have stressed the unavoidable subjectivity of the futures researcher, but as noted above, this notion does not carry us very far. It is a long way from the idea of 'situatedness' which derives from other traditions and implies, in part, that the complex network of meanings and relationships encompassing individuals is to be viewed not as a weakness to be avoided in pursuit of a spurious objectivity, but as an unavoidable and positive attribute of all social life, on which the researcher can, and must, draw.[87] Concepts and understandings of this kind are conspicuously absent in the critiques of futures study and research originating in the United States. An example is provided by Fletcher who reacted strongly against another proposal for a 'science' of futures.[88] The grounds of his objections are instructive. In summary, they are, first, that "a science of futurology" and the pursuit of a consensus view which this implies "would severely limit – if not eliminate – a wide range of potentially functional images, methodologies and roles".[89] A second objection concerned the proposition that universities were the ideal place for this 'science' to be pursued. This, suggests Fletcher, would "disenfranchise a large majority of stakeholders in futures study"[90] (ie non-academics). "Futurology", he asserts, "started, and has been developed largely outside the university". In his view, this is where it should continue, rather than become the prerogative of an academic elite. The last, and perhaps most important, objection arose from the suggestion that such a 'science' would necessarily be concerned with prediction. He writes, "a search of the literature I did in 1978 made it clear that the term 'predict' is not normally used in the field….I maintain….that we should not speak of 'correct' forecasts, but of usable ones".[91]

These objections, and those discussed above, arguably play important corrective roles and may be regarded as part of the developing critical tradition within the field. But the recurrence of claims to objectivity and 'scientific' status suggests that critiques originating in the U.S.A. have not, on the whole, been sufficiently robust or penetrating to be very effective. In part this is because concepts such as reductionism, bias, subjectivity and elitism are too pragmatic and insufficiently analytical. Even where analysis is attempted, it frequently tends to be superficial.[92] More importantly, these critiques fail because they de-focus questions of ideology, of skewed power relationships and of fundamentally conflicting interests. As suggested above, the absence of these concepts and the important questions they raise may be linked with the dominance of empirical/rational social science traditions, and the relatively subordinate position of critical/hermeneutic and neo-Marxist perspectives. (Some exceptions are discussed below, eg Van Manen, 1977, Peters, T. 1974, but there is no evidence of significant impacts in the futures field.) One consequence of this is a dissonance, frequently encountered in futures writings (including examples noted above), between the emancipatory intent of the work and the technical/instrumental undertones evident in the kind of language used. This is particularly noticeable when notions of 'control', regulation and urgent warning are present.[93] Clearly, a truly critical futures approach must seek to reveal these internal contradictions and develop the emancipatory potential of the field.

The most penetrating critiques of the ideological content of futures-related activities tend to be mainly European in origin and inspiration. It may be recalled that as early as 1967

Jouvenel entitled his seminal work "The Art of Conjecture" and not "The Science of Forecasting". While most European governments have assimilated many of the techniques and approaches of 'hard' futures research (via manpower planning; social, economic and technical forecasting)[94], futurists here have been less willing to follow what Mulkay calls the 'standard model' of science. (See below.) Hence, while much of the pioneering work in the field was carried out in the United States, European critics have played, and continue to play, a crucial role in evaluating this work. Indeed, inter-cultural criticism may be inherently more penetrating by virtue of the distancing effects created by the critic's immersion in different cultural traditions. Thus, for example, Goldthorpe detects strong historicist elements in "American futurology", not least of which is a "clear concentration on economic and technical forecasting". The tendency to view change in these dimensions "as the key dynamic – or….constraining forces within modern societies" is, he suggests, associated with a neglect of "the way social actions can impinge upon (such) processes to speed, check, divert them etc."[95]

Goldthorpe reserves particular criticism for Bell and Kahn in whose work he finds a neglect of the role of values in bringing about, or resisting, social change, a tendency to take as 'given' the existing socio-political status quo and its associated technological and economic trends (most visible in Kahn's concept of the 'long-term multifold trend'), and, finally, a vision of the post-industrial society which is both "technocratic and meritocratic".[96] The 'natural inevitability' of these developments represents a prime example of the 'colonisation of the future' by, and on behalf of, existing elites. By viewing technological and economic trends as primary determinants of change, these writers understate the influence of other factors which can then be viewed as 'social problems". Goldthorpe very clearly reveals the ideological significance of this. He writes:

> the language of social problems can be used to discuss what are often in fact situations of social conflict in such ways as to politically 'de-fuse' them – minimising the apparent relevance of partisan differences or rival ideologies, while maximising that of non-ideological, pragmatic, techno-administrative 'solutions'. Politics then becomes reduced to little more than haggling over the respective merits of those 'solutions' which the experts deem to be feasible.[97]

The failure of most American futurists to develop critiques along these lines in serious given their dominance in the field, and the dominance of that nation in world affairs.[98] For as Miles correctly states, "all future studies – including those purporting to be purely exploratory – are inevitably value laden".[99] Far from being "fundamentally intercultural",[100] futurists who fail "to challenge the dominant interpretation of world economic relationships as being mutually rewarding to rich and poor alike", risk the charge of ethnocentricism.[101] Elsewhere, Miles emphasises that "underlying even the most sophisticated quantitative analysis is a core of assumptions that are political, not solely technical". Indeed, he continues, "the dominant features of forecasting are structured by a set of dominant – but not monolithic – interests".[102] Where these considerations are ignored, overlooked or obscured by a functionalist, conflict-free view of society, then futures studies can be mystificatory in effect, if not in intent. Nor is this

limited to professional futurists. Many popular works have been produced on both sides of the Atlantic which extrapolate uncritically from the status quo, taking as 'natural' the existing web of social relations. Frequently questions of power, value and purpose are hidden behind an impressive facade of technological wonders. This is particularly dysfunctional in educational contexts, the effect being to 'close off' possibilities and potentials from imaginative exploration.[103]

It is therefore evident that parts of the futures field have acted, and continue to act, as 'servants of power', and that moreover, the relatively feeble character of much American criticism has, by focusing on lower-order questions and problems, failed to challenge this. But it is also true that the field now extends far beyond American shores, and beyond the early extrapolative approaches. More recent work shows evidence of the pluralism that many now see as essential,[104] and support for claims to neutrality is no longer backed up by other research.[105] Similarly, the view that futures study could be a science runs counter to both the strongly developing qualitative approaches and to the more sophisticated conceptions of science that have developed from the sociological analysis of that field.[106] Thus Miles' contention that "the essential complement to the widening and deepening of public debate about the future is a critique of the ideological dimensions of all futures research" seems apposite and well founded.[107]

It may not be overoptimistic to suggest that some critics within the futures field are developing an awareness of its limitations. Thus Jones writes that "the limitations of our senses preclude complete certainty….(hence) the principle aim of future studies is to define the range of credible alternatives as clearly as possible".[108] Again, Wagschal and Anzilone question many of the accepted tenets of American futurism, finding it "a bit naïve" to imagine that "control" over the future is possible when so much of the past and present remains problematic. Their account of 'Negative Futurism', while not without its defects, repudiates the attempt to maintain an apolitical stance, and "formal enquiry" into the future "so that we may better prepare ourselves for it".[109] For them the so-called "study of the future" focuses on understanding and acting "in the present". Negative futurism, they write, "stresses a critical perspective and an adversary role….(it) renders problematic the use to which we put our images of the future".[110]

These developments indicate that, while not yet approaching maturity, the futures field may at least have passed beyond its infancy. Earlier claims now seem overstated. The once-popular 'future shock' thesis with its exaggerated view of the inevitability of technological change and its under-dimensioned image of human personality is no longer adequate or convincing.[111] The recognition that there are limits to what the field may hope to achieve leads to a more realistic assessment of its strengths and weaknesses. Recent overviews suggest some attempts to refine its conceptual and theoretical foundations. Indeed, as Wagschal and Anzilone (among a small number of other writers[112]) demonstrate, this is leading even American critics toward the very questions that are necessary components of a mode of futures study that aspires to be 'critical' in its deepest sense.

Thus the field is complex, dynamic, evolving. One may detect genuine progress toward a more mature stage of development. But in view of its growing pluralism, the uncertain and open-ended nature of the problems it attempts to address and the range of sources upon which it draws (let alone the range of interests which it serves), it seems unreasonable to expect that its internal problems and inconsistencies will disappear. As with the social sciences (including the study of curriculum), 'complete' or 'correct' answers are less likely than more or less adequate ones. Michael Young's comment that "the gazer into the future has never yet found a really comfortable intellectual position, and perhaps never should unless, that is, he is a preacher",[113] has much wider applicability. But this is not to suggest that the field does not have a crucial role to play in curriculum renewal, and indeed, in other areas also.

The case for a critical approach to Futures Studies rests upon at least three major considerations. The first is that, (as discussed in section two), the world we now live in differs in many crucial respects from that which we inherited, and it holds before us prospects that are historically unprecedented in numerous important ways. Second, it has been suggested that the futures dimension is intimately related with virtually every aspect of everyday life. To the extent that people become aware of this and refine their perceptions and understandings, they can aspire to greater autonomy, freedom, and the conscious development of their existing, but under-utilised, future-shaping capacities. This, it is obviously vital to continue to 'upgrade' the theoretical base and practical competencies already developed within the field in order that they become free of mystification, reflexively cognisant of inherent ideologies, interests and biases, and more openly accessible to the wider public.

To be effective, the field must begin to clarify its use of guiding concepts and metaphors, and develop more appropriate styles of discourse. In particular it should abandon the hectoring, insistent tone so often used in the past and attempt to develop strategies of communication based more on negotiation and dialogue. It must also achieve a more credible mediation between 'stability' and 'change', recognising the mutual necessity of each rather than merely stressing the latter. It needs to achieve a deeper understanding of those aspects of change processes with which it is concerned and, in particular, integrate recent insights from the study of the sociology of science, technology and society. Above all perhaps, it should seek to develop the critiques of its own, often obscured, ideological commitments, in the manner indicated above. To develop some of these points the following chapters draw selectively on several other fields of enquiry.

Clearly, the whole futures enterprise is, with its many imperfections, something of a 'distorting mirror'. It can no more escape its own presuppositions than can the social sciences, including history.[114] But neither can it be doubted that its concerns are central to the conduct of human life. Ferkiss' critical study of 'futurology' closes with a passage that expresses this very clearly, and it provides a fitting conclusion to this chapter. He writes,

> whatever the future may hold for Futurology with a capital F, there will always be a futurology, just as there will always be a future. Human beings as individuals

and human societies as groups cannot escape the onward movement of time and with it the inevitability of change, of new events and conditions that will affect their lives. Their only choice is between being completely surprised by the future and therefore wholly subject to the control of external forces, or, alternatively, having some basis of knowledge about what is accordance with their own desires and values. The choice is, in other words, between complete unfreedom and relative freedom. As long as men seek to be free they will seek to control their destinies; to control their destinies they will have to anticipate them; and to anticipate them they will have to become in some sense futurists.[115]

3.2 Elements of Critical Futures Study

3.2.1 Speculative Story Telling : An Underutilised Resource

In some contexts the word 'speculative' has acquired negative connotations which render it synonymous with such terms as 'unfounded', 'unrealistic', and even 'unsound'. Similarly, story telling is most commonly associated with early childhood, with fairy stories and moral tales. Hence the present use of these terms differs somewhat from common usage. Indeed, once of the tasks of this work is to 'reclaim' them and to stress other, more useful, connotations. In particular – and this follows from the foregoing – it is suggested that speculation (understood as the imaginative exploration of nascent futures), is an essential component of any forward-looking perspective. Further, the main thrust of the work is that curriculum questions cannot even be adequately framed in the absence of such a perspective. Hence the task in this chapter is to suggest why speculative fiction has not been more widely utilised by futurists and educators, and to show, in outline, how it might contribute to the work of each. (The focus here is on futures studies since curriculum embodiments are dealt with in section four.) This discussion does not discuss the nature of speculative literature and definitions thereof since these are contentious matters that are not relevant to the present purpose. Moreover they have been dealt with in some detail elsewhere.[1]

Stories are arguably among the oldest of cultural forms. They are found in the earliest historical records, and their uses over the centuries are many and varied. Today these include the instruction and initiation of the young, the sharing of experience, attempts to explain and explore the world and to negotiate meanings. The development of the human personality and of linguistic competence appears to be closely related to story-telling and to the articulation and renewal of cultural themes, concepts, ideas, beliefs, rules and metaphors, which this facilitates.[2] One might therefore expect a field which attempts the exploration of future alternatives to grasp the cultural, imaginative and (for want of a better word) 'futuristic' implications of stories. But, with the possible exception of North American futurist educators, this has not happened on any significant scale. Some futurists have used speculative literature for illustrative purposes (eg to 'flesh out' an argument or idea), but it is hard to find evidence of more sophisticated or systematic uses. For example, of the writers quoted above in relation to 'images of the future', only Boulding examines it in any depth.[3]

This work is not concerned with the apologetics of speculative fiction (which, for convenience, I shall call sf), or with an evaluation of its themes or wider functions in society. Again, these issues have been dealt with elsewhere.[4] What is of concern are the disparities between the minimal use of sf in the futures field and some of its major potential uses there. For in the absence of appropriate story-telling, futures studies courts a kind of over-abstract intellectualism, a one-sided and decontextualised preoccupation with plans, projections, paradigms and scenarios which are all grist to the futures mill but which may be virtually meaningless to others. In part, therefore, what is at stake is a failure to communicate, an inability to reinterpret futures concerns in forms that are more meaningful, and more accessible to non-futurists, and an apparent inability to draw on,

and utilise, the wealth of relevant stories already in existence. Indeed, so great and varied is this wealth that a full survey cannot be attempted here.[5]

Futurists are not alone in undervaluing and underutilising sf. With very few exceptions, critics and teachers in the literary 'mainstream' tend to be dismissive of the genre as a whole, reserving their favours for a small number of isolated and well-known works.[6] Most sf is regarded merely as 'popular culture' distinguished, it is supposed, by stereotyping, predictability lack of characterisation, inept plotting, and puerile imagery. The fact that many works of speculative fiction actually deserve this critical disdain serves to strengthen the stereotypes and prejudgements that have arisen. But they also obscure the fact that a very wide spectrum of work exists which ought not to be dismissed in this way. Neither should the possibility be overlooked that even the least distinguished 'space fiction' of the post-war decades was concerned with rather more than the working out of adolescent power fantasies. It is now evident that regarded as cultural productions, their significance is considerable. For example, Stableford links a number of examples with deeply felt cultural changes and fears.[7]

One major reason for the widespread dismissal of speculative literature is that it embodies different intentions to realistic or 'mimetic' writing. Whereas the latter is centrally concerned with the evolution of character in largely traditional, pre-given, environments, the former may best be understood as a series of attempts to come to grips with the radically new forces (arising from the 'progress' of science and technology) that are undermining the physical, social, psychological and epistemological structures inherited from the past. In fact, with the passage of time and the continuing penetration of science and technology (or their 'imperatives') into the sociocultural fabric of our lives, many of the distinctions between 'realistic' and 'speculative' literature may be breaking down. In any event, realism as an expressive mode or category, has become increasingly problematic, as the evolution of the visual arts shows. As Scholes notes,

> it is because reality cannot be recorded that realism is dead. All writing, all composition is construction. We do not imitate the world, we construct versions of it. There is no mimesis, only poiesis. No recording. Only constructing.[8]

Thus imaginative literature which is openly speculative may be more congruent with emergent non-deterministic world views and growing acceptance of the view that 'reality' is socially constructed. But this anticipates themes to be developed below.

Again, it is possible to regard sf as simply part of an 'entertainment industry'. As such, there is little doubt that it may become readily debased, a product to be created, distributed and consumed as quickly as possible. This 'disposable fiction', written to formula, certainly forms a significant proportion of what is published. It is indeed often juvenile, crass, and marketed in a gaudy and tasteless manner. But, this said, sf provides the paradigmatic example of the futility of attempting to 'judge books by their covers'. That is to say, the ideas presented in many unattractively packaged books belie the triviality of their associated imagery. Consequently, the reading public is often mislead as to the nature of the books, and authors find themselves in conflict with publishers for

mis-representing their work.[9] For those unfamiliar with the genre and the publishing conventions associated with it, it is sadly necessary to negotiate a virtual minefield of bad taste and grotesquerie in order to locate the more valuable material. This can be as much of a barrier for futurists as for others, and the only immediate solutions are either to find a reliable guide, or to consult the growing critical literature on sf.[10]

A further barrier to the understanding and acceptance of sf – and one that should present fewer problems for futurists – is that much of it could be considered genuinely disturbing. Stories of dislocated consciousness, temporal paradox, counterfeit worlds, sentient machines and the like derive much of their dramatic power from our fears and uncertainties (thus helping us to confront them, if we will). They are structured by those very things that have become problematic to us and hence question many of the taken-or-granted assumptions underlying everyday life. According to one's disposition the dissonances thus created may facilitate imaginative reflection or just appear repellent. As Disch notes, "sf is a virtual treasury of ways of standing the conventional wisdom on its head".[11] Those who are comfortable with that wisdom may not wish to see it questioned, even in fictional terms. Another reason why sf may be disturbing to some is that much of it deals with what may happen when technological imperatives override or frustrate human purposes, or when destructive human impulses are amplified and extended by powerful technologies. The evident fascination that writers show in regard to the tragedies that inevitably ensue is not necessarily due to sadistic or masochistic tendencies. On the contrary, it seems to arise from a very real and deeply-felt resonance between existing ways of life and their increasingly destructive potential,[12] and partly from the ambiguous nature of technological progress which, while profoundly interwoven with the material base of our existence, nevertheless seems to call into being new dimensions of freedom <u>and</u> slavery.[13] Hence an important function of dystopian 'phases' is sf is that of warning, of sensitising to danger. This makes 'preaction' more imaginable, and hence potentially achievable.

Despite futurists' concern for possible futures, many appear to share prevailing attitudes to sf. While academic interest in the study of the field has mounted steadily in North America there is little evidence to show that British teachers or futurists in general have successfully overcome the stereotypes surround sf or integrated it into their thinking or their work.[14] Apart from factors already mentioned, the reasons for this are complex. However, in the former case, they may be linked with the traditions and lags discussed in part one, and in the latter with the nature and development of the futures field itself.

It was suggested above that post-war futures studies had its roots in strategic, and later social and economic, forecasting. It may therefore be hypothesised that the early 'culture' of the field was dominated by empiricist approaches, positivistic conceptions of science and an instrumental interest in manipulation and control. Given also the influence of the empirical/analytic social science traditions noted above, it seems entirely plausible that the significance of stories as imaginative vehicles permitting the rehearsal and communication of policy recommendations, normative claims and 'embodied scenarios' was not widely appreciated. Indeed, where undue reliance on quantification became the

norm, the resulting analytic procedures would have tended to render the significance of stories almost 'unthinkable'.

Today the situation is less clear cut. Sf is, as noted, occasionally used for illustrative purposes.[15] But the articulation between it and, for example, futures research, remains uncertain. The construction of scenarios and the formulation of projections still reflect a primarily technical orientation, and empirical/analytic assumptions. It is only recently that serious attempts have been made to integrate values and other non-qualifiable phenomena into these reified abstractions from social reality.[16] Clearly, all such projects contain numerous qualitative assumptions and it is important to make these explicit. But even when this is achieved, (a difficult task in itself), it must be doubted if such work can faithfully reflect the 'embeddedness' of social life, the sense of continuity-in-change, the symbols, metaphors, practices and traditions that constitute social reality. Yet it is just these things that can be represented or modelled in stories which may therefore complement or 'deepen' existing research techniques. The underutilisation of stories within the futures field may well imply a continuing preoccupation with technical and theoretic concerns, and a failure to address substantive sociocultural questions.

It is notable that there are remarkably few stories which have been written by futurists per se. Indeed, most writers of speculative fiction appear to have no formal links with the field beyond an occasional appearance at conferences and educational courses. But futures-related stories have been produced by people who could be termed 'marginal futurists', in that they appear to be concerned less with the field as such than with more specialised or sectional interests which have some bearing upon it. For example, Sally Gearhart Miller has written a series of very evocative stories which embody visions of radical feminist futures (collected under the title "The Wanderground", 1979). A contrasting example is provided by Isaac Asimov whose prolific output serves as a vehicle for his views on the value of scientific and technological development.[17] Again, following in the utopian tradition is Callenbach's "Ecotopia"[18] which presents a well worked out view of life in California modelled on the tenets of the 'alternative lifestyles' movement which flourished in the late 1960's and 1970's. Perhaps the only futurist to have strongly emphasised the value of speculative literature is, ironically enough, Alvin Toffler.[19] But while some of his observations are sound, they are not helped by association with the provocative "Future Shock" thesis. Yet, a book edited by him contains some useful material that will be referred to below.[20]

It is tempting here to stray a general discussion of the social and cultural merits of sf.[21] But attention must be restricted to the ways that it can contribute to the futures field, and thus potentially also to curricula which draws upon this. (The question of why this potential has been 'actualised' in North American educational contexts, but not in Britain is dealt with below).

As appreciation of the value of sf in futures studies does not, of course, lead automatically to a more critical approach. But there is reason to believe that it complements such an approach in part by revealing possibilities and potentials that might otherwise remain hidden and unappreciated. As suggested above, responsible action is

partly dependent upon the recognition and evaluation of realistic alternatives. To the extent that these become 'real' enough to merit consideration, 'choice' and 'control' may be enhanced. As Scholes puts it (perhaps a little dramatically).

> to live well in the present, to live decently and humanely, we must see into the future....if there is any hope at all, it will depend on the ability of....men and women of imagination to make us see and feel the reality of our situation and the consequences of our present actions.[22] (Emphasis in the original.)

It has been suggested that the idea of 'alternative futures' may be a master concept within the futures field. Yet analytic approaches to 'probing the future' are inherently limited by future uncertainty and by the fact that they omit so much of significance in 'the present'. But stories are not limited in these ways. It is true that they spring from a network of existing social relations and understandings – indeed, that is part of their strength – but they also permit us to range 'outward' beyond present limitations, beyond facts, trends and accepted conversations. (Although they always in a state of 'dramatic tension' with these.) That is to say, they are 'situated', but not time-bound. Speculative fictions unite reason with fantasy and intuition, and together these permit us to re-assess 'the past', reinterpret 'the present' and to 'explore the future'.[23] Hence the schematic overview of past, present and future presented above showed an 'unbounded some of intuitive constructs and images' stretching out ahead of the usual techniques of futures research. This suggested that far from being 'empty', a region of formlessness and non-existence, 'the future' could be regarded as a dynamic field of potentials, which could indeed be metaphorically explored and assessed. A crucial point here is that the very existence of stories which deal with innumerable aspects of 'the future' greatly reduces the cognitive and imaginative investment that is required in order to gain a sense of future possibilities. Hence, speculative fictions make 'the future' uniquely accessible to a very wide audience. As Livingstone writes, sf is

> an archive of futuristic images, a literary repository of the hope, fears and speculations of men and women concerning the evolving status of humanity and, therefore, an invaluable training ground for its readers in the anticipation and creation of things to come.[24]

Thus, perhaps the primary use of speculative literature is to embody futures potentials, to 'flesh out' by imaginative efforts, by intuitive and metaphorical leaps, aspects of possible futures that would otherwise remain hidden. Familiarity with some of the traditional themes of sf, far from being 'escapist', sets up tensions and resonances with existing ways of life, and their potentials, thus generative valuable insights and questions. For example, stories dealing with the future of megalopolis may prompt the reader to consider more carefully the implications of existing urban trends. Again, tales of human cloning, genetic engineering, prolongevity and so on lead to vital questions about the nature and direction of medical research.[25] Indeed, so powerful is this sensitising function that Arthur Clarke has gone so far as to suggest that "only readers and writers of sf are competent to discuss the possibilities of the future". The reason for this assertion is that

> over the past thirty years, tens of thousands of stories have explored all the conceivable and most of the inconceivable possibilities of the future; there are few things that can happen that have not been described in books or magazines.....(Hence) a critical reading of sf is essential training for anyone wishing to look more than ten years ahead.[26]

Clearly this is overstated since speculative literature is by no means the only source of ideas and images of 'the future'. It is equally clear, however, that sf represents an important and continually growing resource that requires disciplined and systematic treatment. As with futures studies itself it is not primarily concerned with prediction but with exploration, understanding and the posting of choices. Properly understood, it may act as a counterbalance to rationalistic tendencies within the field and serve to expand its temporal and imaginative scope.

From the above, it follows that futures research in any specific area may be incomplete if it fails to consider stories that focus on the same subject or themes. Yet examples of research in which speculative literature is treated as a major focus of enquiry are not easily found. One notable exception brought together the views of sf writers and psychologists regarding the quality of life that could be expected in technically advanced societies, given the continuation of existing trends.[27] The conclusion (that the outlook was bleak) need not concern us at this point. What is important is that the researchers understood the significance of this body of writing. But they do remain in a very small minority. Most futures-related publications have remarkably little to say about literature which, in many cases, prefigures their present-day concerns and embodies imaginative resolutions of them. Thus, to take a single example, to attempt to write of the social implications of information technology without considering such works as Forster's 'The Machine Stops' (1909), Johannesson's 'The Great Computer' (1966), Brunner's 'The Shockwave Rider' (1975) and Pohl's 'Man Plus' (1976) is to risk a very one-sided approach.[28,29] Thus a second possible use of sf is to provide part of the substance or background for writing or research in specific areas. Just as the whole span of speculative writing belies the image of 'the future as an empty space', so stories based on particular themes can 'round out' scenarios, provide specimen resolutions and generate new lines of enquiry in virtually any area. Indeed, it will be suggested below that some stories can be regarded as 'thought experiments' in their own right.

A third, sometimes cruder, use of sf derives from stories which contain warnings of what might happen. The relatively unsophisticated nature of some stories, as suggested below, in no way detracts from their importance as cultural artefacts. Images of the havoc created by wayward robots/computers/aliens reflect real and well-founded fears of de-personalisation, threat and loss of 'personal agency'. The fact that dystopian themes of this kind have formed such a major part of post-war writing almost certainly reflects a general loss of confidence in the wider culture. A major factor in the rise of the pessimistic outlook was the advent of nuclear weapons. As Stableford puts it,

> the advent of nuclear weapons did more than confirm a growing suspicion that the world possessed the means to bring about a man-made catastrophe of awesome

> dimensions. It helped bring about a consciousness of the future as a kind of continuing catastrophe – a mess which we had already made and would have to take special measures to escape.[30]

One manifestation of these 'special measures' is arguably provided by the futures field itself, and is plausible to assume that images of 'the future as catastrophe' may have played some part in its development and growth. Yet the constructive uses of dystopia represent a largely unexplored, but potentially fruitful, area for future research.[31]

Perhaps the most far-reaching uses of sf derive from its ability to function as an epistemological tool which questions widely held presuppositions and reveals the contingency of 'the present'. In one mode it takes the form of 'thought experiments' which basically pose 'what if...?' questions. What if... the human lifespan was doubled.....infinite supplies of energy become available....universal communication was achievable....computers became self-aware? Questions of this type are commonly asked in sf and their effect is, in part, to re-arrange the parameters of 'ordinary' existence, testing their durability or 'fit' with new assumptions or possibilities. That some of the questions being asked sometimes appear outlandish or improbable is beside the point. As Scholes notes, following a discussion of some of the implications of the 'new' physics. "at every turn we run into patterns of shaping force that have gone unobserved by our instrumental approach to the world". Consequently, he adds, "we are free to speculate as never before".[32] As we have noted above, speculative fiction metaphorically re-arranges the world and sets up various tensions between what is and what might be.[33] This acts not merely to stimulate the imagination (which is, at best, a rather vague achievement) but to widen the bounds of possible and prepare the ground, as it were, for reconceptualisations of the human situation that must follow (or accompany) the dramatically new perspectives created and revealed by science and technology. As Raymond Williams has suggested,

> It is part of the power of science fiction that is always potentially a mode of authentic shift; a crisis of exposure which produces a crisis of possibility; a re-working, in imagination of all forms and conditions.[34] (Emphasis in original.)

This transformational aspect of speculative literature is one of its most significant features, although it may be subverted when the images and vocabulary of sf are used merely to 'illustrate' aspects of technical development.[35]

One variant of the 'thought experiment' which has achieved respectability is the utopia. This, according to Holquist, may be regarded as a kind of game, a speculative instrument whereby authors may set out their theories and "speculate on the unchartable laws of history".[36] Even fantasy, which is often mistakenly taken to imply dissociation from the 'real' world, interrogates it upon the epistemological level, and in Jackson's view, "it is not to be equated with irrationality.....It reveals reason and reality to be arbitrary, shifting constructs, and thereby scrutinising the category of the 'real'".[37] But more importantly in the present context is the parallel, or alternate, word story (which is itself only one of a large number of approaches to temporal paradoxes and problems).[38] Since this has yet to

receive the critical attention it needs, it deserves brief mention here. Typically it involves the fictitious reconstruction if history, either by the device of positing an infinite number of 'parallel worlds' where all possible combinations of event occur somewhere, sometime, or by altering a key historical event, which results in outcomes that differ from those that are familiar to us.

Among the most highly regarded alternate world stories (highly-regarded, that is, from within the genre) is Keith Roberts 'Pavane', (1968). It postulates a successful assassination plot against Queen Elizabeth in 1538 which allows the Spanish Armada to conquer England and establish Catholic domination from that time. Roberts skilfully portrays a nation which, by the Twentieth Century, is still dominated by the church. The Industrial revolution had been stifled and science had remained largely in its medieval state. Reading such a novel dramatises the fact that the 'present' which we experience is but one alternative among many others and could quite easily have been very different indeed. Furthermore , we are led to consider the fact that our own actions are now helping to define the future that will constitute the reality of others.

Other examples are provided by Dick's 'The Man in the High Castle' (1962), which defies adequate summary but is located in an underdeveloped and poverty-stricken America under the joint domination of Japan and the Third Reich; Moore's 'Bring the Jubilee' (1953), which looks at some of the possible consequences (and paradoxes) of the American Civil War having been won by the South; and Harrison's 'A Transatlantic Tunnel Hurrah!' (1972), which has the Spanish losing an important battle in 1212, thus allowing a Protestant British Empire to spread over the globe. As with other forms of speculative literature, stories of this kind have been dismissed as 'escapist'. But as Scholes and Rabkin have pointed out, the alternate world story

> at its most serious, raises questions about history and progress that are not accessible to any other fictitious form. Above all, this form emphasises the way that the actual events of history have shaped cultural values that we sometimes take to be absolute.[39]

Most significantly, the serious alternate world story undermines the taken-for-grantedness of the world we have come to know. It suggests that 'the present' in which we exist is the contingent result of decisions and events that took place long before we were born. As noted above, it invites us to see our own lives in a longer time-frame and in relation to future generations whose 'reality' in many ways grows from, and depends upon, our own. The perception of unavoidable involvement with 'past' and 'future' with the rationale for a future-orientated approach to curriculum problems which is set out in section four. Indeed, a further major use of speculative fiction is as an heuristic or enabling device in education, and this theme is returned to below.

Limitations of space preclude a more extensive examination of speculative story-telling. But even this brief account suggests that it is indeed an underutilised resource, and one with major implications for futurist activities. This is particularly true when the latter take the form of recommendations for social policy. The point is amplified by Martin Rein in

his book 'Social Science and Public Policy', (1976), in which he outlines a 'value-critical' approach to social science that is clearly congruent with the foregoing discussion. Such an approach, he writes, "treats values not merely as the accepted aims of policy but as a subject for debates and analysis...(It) tries to understand the logic, meaning and consistency of ends and.....does not make the assumption that there are discoverable casual relationships that are stable over time." He then continues,

> the analyst's advice to policy-makers is based on social understanding and depends upon the use of illustrative stories, or accounts from past experience, which suggests how the future might unfold if certain actions were taken. I use the term 'story-telling' in part to make clear that the effort is less rigorous than the positivists attempt to develop general laws, and in part because the logical structure developed in this system is much the same as that of a story.[40]

He confirms that it is largely through metaphor and analogy (rather than 'description') that we are able to "describe patterns....tease out lessons" add to produce "constructions of reality". The metaphor is particularly crucial because "it supplies the normative leap that provides the direction for action"[41] It is therefore reasonable to conclude that serious speculative literature (which is rich in metaphor) is a wholly appropriate mode of discourse for critical futures studies.

To summarise, these stories embody future potentials, thus facilitating the imaginative exploration of alternative futures. They have implications for research: providing background material, posing questions, opening up new areas of enquiry and so on. They articulate warnings and 'rehearse' possible resolutions to anticipated problems. They permit the re-conceptualisation of inherited cultural meanings, dramatise historical contingency, and support the view that the present is inextricable bound up with 'past' and 'future'. They make possible metaphorical shifts and transpositions through which existing concepts are 'displaced' onto new situations, hence making them accessible to understanding.[42] As Aldiss notes, "the ancient craft of story-telling....is capable of achieving a status by which our epoch can be interpreted anew to itself".[43] This is a large claim but it should be viewed sympathetically because it is evident that the mediation of past, present and future depends at least as much upon the sensitive intuitions of artists and writers as it does upon naturalistic science and the uncertain lessons of history. Furthermore, as will be seen below, the question of interpretation is central to the development of a critical approach to futures studies.

3.2.2 Revising and Refining a Futures Perspective

There should be no doubt about the significance of the questions posed within the future field. Indeed, it seems likely that some such attempt to achieve a syncretic and prospective overview of human affairs has now become a necessity. Life at the level of the local and immediate is no longer self-supporting. It depends instead on the satisfactory functioning of national and international systems (military, economic, technological, environmental), many of which, as suggested above, are showing signs of instability or even collapse.[1] Hence, neither the scale and complexity of the issues

involved nor weaknesses in theory and approach should obscure the fact that futures research, in its widest possible sense, represents a search for adaptive responses to uncertainty, rapid change and quite new dimensions of hazard.[2] Thus in seeking to revise certain common futures assumptions and to draw on more defensible theories, due credit should be given to the early pioneers of the field whose work has been drawn upon above.[3] The critique being developed here has not sought to minimise the value or importance of this work but to contribute towards a re-assessment, a long-term dialogue, via which the field as a whole may become more accessible and effective, particularly in regard to curriculum questions. Any attempt, however, to increase the critical power of futures studies must build upon a recognition of existing weaknesses.

What follows is certainly not an attempt to set out anything approaching a comprehensive program for the futures field (although it has implications for any such attempt). Rather, the intent is to draw on other traditions of enquiry to re-examine some of the difficulties identified above (chapter 3.1.3) that appear to render much futures work ineffective, and hence difficult to apply as it stands to educational tasks. To the extent that such difficulties can be resolved, or simply articulated more clearly, there may be progress toward the development of a truly critical approach to futures studies and a re-thinking of curriculum problems. However, it must be emphasised that it is not feasible resolve all the problems that arise in this context, many of which have no clear or simple answers. These should, perhaps, be regarded as foci for longer-term research and dialogue, both between individuals and traditions.[4] In view of the critique presented above and the need to keep this enquiry manageable, it is useful to concentrate upon three areas. These are:

1. A re-assessment of the 'standard view' of science.
2. The need to analyse the ideological commitments and constitutive interests of futures study.
3. The need for critical/hermeneutic refinements in futurists' understandings of language, culture and social life.

There are by no means exhaustive but they will be sufficient to provide an outline of critical futures studies. This, in turn, will suggest how some of its existing major concerns may be revised. From there it is but a short step to examine futures education from a critical futurist perspective and, finally, to suggest how the latter may contribute to curriculum renewal.

1. Re-assessing the 'Standard View' of Science

It is entirely proper that those involved in the development of a relatively new field should seek recognition and support. But when this takes the form of hopes for a 'general science of the future', or claims to 'scientific' status (see above), futurists should be cautious. Implicit within such claims is a desire to draw on the prestige and authority that have become associated with the empirical or 'natural' sciences. But there is reason to believe that this not only misconstrues the uncertain and open-ended nature of futures problems, but also perpetuates assumptions about the nature of science that are now in considerable doubt. A minimum requirement for any appeal to 'scientific' status is that it

be informed by recent work on the sociology of scientific knowledge. But there is no evidence that this requirement has been recognised or met, and hence the conception of science held by some futurists and its relation to their own work needs to be revised.

The prestige and authority of the empirical sciences arise, in part, from their proven ability to produce reliable knowledge – theories, principals and 'laws' of great power and wide practical applicability. But these achievements have, until recently, obscured crucial aspects of the production of scientific knowledge which, properly understood, lead to revised understandings of the nature of science, and hence its adequacy as a model for other fields. The futurist appeal to science appears to be grounded in what Mulkay terms "the standard view". In this perspective,

> the natural world is to be regarded as real and objective....Science is.....concerned with providing an accurate account of the objects, processes and relationships occurring in the world of natural phenomena....It reveals and encapsulates in its systematic statements the true character of this world....Basic empirical regularities can be expressed as universal and permanent laws of nature....(and) unbiased, detached observation furnishes the evidence on which these laws are built.[1]

Thus science had been regarded as somehow being independent of individual subjective factors and of social and cultural influences. In this view it 'stands above' everyday social processes and embodies a claim to objective, value free knowledge.[2] Hence its authority it supported, in part, by notions of predictability, certainty and control. But the optimism inherent in this view has never been wholly persuasive, and the responses of the general public remain deeply ambivalent. For one thing, as noted above, the costs of scientific progress have become increasingly evident. For another, it became clear that "since Darwin's day (science) had been busily destroying the fixed universe of tradition; now it made clear that it offered no conciliatory alternative of its own". As Handlin notes, people had "learned to tolerate but not to assimilate science".[3,4]

The disparities between the "staggering optimism" inherent in the 'standard view' and the increasing sense of pessimism, threat and loss of certainty and control have helped to stimulate a profound re-examination of the premises upon which the former was based. The resulting proliferation of studies and perspectives on the social relations of science have cast new light on the subject, and indeed may amount to a new subject in its own right.[5] It is not the task of this work to review the latter here. But it is useful to draw upon Mulkay's overview to summarise aspects of a revised view of science that bears upon our present concerns.

Mulkay identifies four central assumptions common to the standard view of science. The first of these is the assumption of the uniformity of nature, from which it has been claimed that universal laws may be derived. But as Popper and others have noted, such a principal cannot be verified empirically or in theory. Observed regularities are, strictly speaking, not generalisable. The principal is thus "not an aspect of the natural world, but rather an aspect of scientists' methods for constructing their accounts of that world".[6] A

second assumption is that facts and theories are separate, and the former are "theoretically neutral". This, Mulkay suggests, led to the view that facts can be "expressed in a language which is independent of theory and formulated in a way which simply represents the observable realities of the physical world".[7] But the distinctions between factual and speculative propositions (concerning, for example, theoretical phenomena not amenable to direct observation) could no more be sustained that the claim to objectivity and theories have meaning only in relation to other theories and assumptions. Hence Mulkay concludes that "it is simply impossible to identify a separate class of factual statements constituting the bedrock on which scientific knowledge is built".[9] Furthermore,

> if all terms obtain their meaning through their location in a framework of concepts and propositions, then it seems that no statement of fact is theoretically neutral.....(Hence) all empirical statements are 'theory-laden'.[10]

Indeed, even technical terms "acquire their scientific meaning from the linguistic, theoretical (and perhaps social) context in which they are embedded".[11] Hence, in this revised view, scientific activity of any kind is intimately bound up with wider cultural meanings and assumptions which are part of the common heritage. It follows that if 'empirical science' cannot 'stand above' social and cultural processed then it is extremely doubtful if futures studies, with its in-built uncertainties, can claim to do so.

A third assumption arises from the fact that "observation in science had been seen as a plain recording of the unembroidered evidence of the senses and as being quite separate from the creation of meaning".[12] But this has failed to withstand a series of discoveries which show that perception is an active process in which the observer utilises cultural resources (such as language and history) to construct understanding of the world. "Scientific observation", concludes Mulkay, "is fundamentally dependent upon language."[13] He adds, "scientists necessarily take for granted a wide range of background assumptions. These are normally used as unproblematic resources for organising observation and for giving it scientific meaning".[14]

The final assumption relates to the assessment of knowledge-claims within science. Mulkay shows how scientists use a variety of criteria including, "agreement with the evidence, simplicity, accuracy, scope, fruitfulness, and elegance" which relates to "quite different dimensions". They are in other words, incommensurable, and appear to "vary in meaning in accordance with the context in which they are used". The writer concludes that such criteria therefore "cannot be regarded....as providing as means of assessing knowledge-claims which is independent of specific analytical commitments".[15]

The 'truth' of scientific knowledge claims was further undermined in the course of the philosophical debate concerning induction where it became clear that the "universal generalisations of science (had to) be seen as imaginatively hypothesised, or extrapolated, from essentially incomplete sets of observations".[16] Hence Popper's suggestion that the theoretical adequacy of a knowledge claim should not rest upon 'proofs', but upon its ability to resist falsification.[17] However, as Mulkay correctly points out, "this thesis

would only hold in relation to isolated theoretical propositions which could be compared with absolutely unproblematic observations".[18] In reality, - and this is fundamental to a critique of futures studies as it stands – he adds,

> we are never in a position where we can measure an isolated and simple theoretical statement against an unmediated natural world..... Scientific knowledge....necessarily offers an account of the physical world which is mediated through available cultural resources; and these resources are in no way definitive.[19]

This summary of a 'revised view' of science has necessarily been brief, but it does have major implications for the futures field. In the first place it is evident that empirical science does not constitute an appropriate model for futures studies or any other socially-orientated field. Even at the 'hard' pole of futures research, the revised view of science suggests that the search for universal laws (permitting 'prediction'), for 'objectivity', 'neutrality' and the 'disinterested pursuit of truth' are extremely problematic. Observed regularities in nature are never conclusive, and this is even more that case with social phenomena.[20] The interpretation of meaning relies upon, and is mediated by, extra-disciplinary sources: language, culture, tradition. Furthermore, fact/value (or fact/theory) dichotomies cannot be sustained in part because what counts as a fact requires prior judgements and validations from sources in the wider culture. Hence, in this view, the pursuit of 'objectivity' and 'neutrality' gives way to a recognition of 'situatedness', a recognition that no investigative activity can be impartial or unmediated, but only provisional and open (in the sense of being context-dependent). This may, to some extent, undermine the special authority of the empirical sciences, but not their practical achievements. That is, to see the products of science as social constructions is not to decry the values of scientific knowledge. As will be seen below, it is rather to assert its fundamental equivalence with other forms, or areas, of knowledge,

Secondly, it is clear that the epistemological foundations of science are less sound than has commonly been supposed. Indeed, uncertainty had been recognised as a central principal in some areas of modern physics.[21] Thus futurists lose little in not claiming to be 'scientific'. As noted, the futures field embodies rather different intentions. On the whole, it does not evince a concern for the 'disinterested pursuit of truth' or with 'knowledge for its own sake'.[22] Rather, it is committed to openly normative projects (self development, global cooperation, the construction of desirable and sustainable futures), that are founded more directly on ethnical and ideological assumptions. Thus a basic task for futurists is to avoid emulating 'science' in pursuit of a spurious objectivity and to work to deepen their own self-understanding. Those who aspire to a 'science of the future' are not merely drawing upon an obsolete model if science but also over-estimating the capacities of their own field. Such aspirations should be understood more as unrealistic attempts to secure legitimation than as realisable goals.

From the perspective provided by the revised view of science it is evident that neither scientists nor futurists can substantiate their implicit claims to 'stand apart' from sociocultural processes. All science, all futures work, is committed. It is articulated by

and through various presuppositions, ideological commitments and interests that demand a high level of reflexivity and self-understanding. It is to these questions that we now must turn.

2. Ideology and Interests

The task here is not to attempt to summarise debates concerning the nature of ideology, or critiques thereof. It is evident, however, that much futures writing contains ideological commitments which need to be revealed and examined. As long as these remain implicit they contribute toward the mystification of the public, conceptual confusion within the field and the inhibition of progress toward greater self-understanding and effectiveness.[1]

The notion of ideology is admittedly a difficult one. In a Marxist view it is associated with forms of thinking and acting which serve the vested interests of ruling classes, and thus carries strong negative overtones. This view, however, is too restricted for our purposes. It is therefore useful to draw upon Mannheim who recognised three distinct levels, or modes, of ideology. At the 'lowest', or least reflective level, it may be equated with "world view", "overall perspective on life" or the "traditional, generally unarticulated mode of perceiving and reacting to the world". The second level embraces the most common understanding of ideology as being "rationalistic (and) ….closely related to group or class interest". Here, to the extent that it conceals the pursuit of sectional interests, it may be equated with "false consciousness". At the most sophisticated, or "general" level, it refers to "a philosophy of life" or a "practical philosophy" which serves not only to 'organise' ones' experience but also to facilitate a self-conscious awareness of ones' own ideological assumptions.[2] The value of this broad conception is that it views ideology in terms of <u>modes of perceiving the world</u>, and not merely in terms of negative 'beliefs' or 'functions'. It acknowledges the socially determined characteristics of ideology but also "brings out its active, sometimes creative nature, rather than its passive 'reflection' of something external (eg class interest).[3]

In this view, "a man disputing ideologically is to be thought of not simply as one prompted by either beliefs or group interest, but as <u>an agent expressing, and thus sustaining or realising, certain preferences, aims or ideals".</u>[4] (Emphasis in original.) Such a view underlines the active and creative potential of ideology and allows us to be sensitive to both negative <u>and</u> positive implications for the futures field. To concentrate only on distortions and mystification (which may be associated with the second level) would be to take an unduly limited view. It is equally necessary that futurists come to terms with their ideological commitments on a higher level of reflexivity. In regarding ideological utterances as "forms of action in which men express, maintain and realise feelings …. purposes and preferences related to those feelings", we affirm their legitimacy and open the way to hermeneutic approaches to their understanding and utilisation.[5] This point is taken up below.

In regard to revising the 'standard assumptions and concerns' of futures studies,[6] this study is not centrally concerned with 'ideology as world-view', corresponding to the lowest level in the hierarchy. However, it is important to re-emphasise that it is at this

level, - the level of traditional, unexamined and taken-for-granted assumptions that science, futures study and indeed all other disciplines and enterprises are grounded. As was seen above, it is here that the methods and rationales of the futures field originate in the needs, competencies and skills of ordinary people.[7] Again, it is here that the operation of constitutive rules, metaphors, values and models help to determine what seems to be 'realistic' or possible at any given time. Futurists will therefore need to recognise, and respond to, cultural phenomena on this level as they attempt to participate in the reconceptualisation of cultural forms that have been rendered problematic by technical progress.[8] But this anticipates the conclusion. So this work turns to consider some of the implicit ideological commitments of futures studies (corresponding to level two). This leads to a discussion of the constitutive interests embodied in the futures field which, in turn, prepares the way for a consideration of futurist ideology at a higher level of reflexivity. Indeed progress towards critical self-awareness at this level can be regarded as a central concern of the perspective being developed here.

It would be possible at this point to analyse the ideological commitments of futurists by way of the categories encountered above. That is, one could search for evidence of historicism, scientism, ethnocentricism, technological determinism, etc. and criticise these tendencies in various ways. But these have at least received some attention. in the literature.[9] It is therefore useful to consider some broader problems that arguably underly these relatively 'accessible' issues. There are at least three areas of concern. Two can be considered in the present section, the other in the next. They concern first, the implications of a close relationship between futures-related activities and the centres of social and economic power; second, the nature of the constitutive interests embodied in, and articulated by, the futures field; and last, whether or not the futures field as it now exists possesses a mode of discourse sufficiently incisive to give it a critical purchase on problems arising from the penetration of instrumental modes of rationality into culture and daily life. Clearly these issues are difficult and deeply interrelated. They cannot be resolved here. But it is possible to suggest why they are important for the further evolution of the field and its application in other areas.

As noted above, the major institutional centres of futures activity have tended to have close links with the centres of social and economic power. While such links may not be characteristic of the futures movement (due to its diffuse structure and 'counter-cultural' tendencies), futures research, forecasting and education are heavily dependent upon government or corporate support and hence constrained to varying degrees by pre-given definitions, imperatives and economic structures.[10] Yet, in principle at least, the futures field is held to be open to alternatives at every level. There is thus a powerful tension between the central concerns of futurists (as expressed in the literature – see 3.1.3 above) and their ability to articulate these in 'the language of social action'. Indeed, far from imagining a 'universe of alternatives', futures studies in general and forecasting in particular has, in the past, appeared to play a significant part in the support of the status quo. From his study of the development of forecasting Miles concludes that it is "usually commissioned and formulated according to the interests of dominant social groups". Furthermore, "forecasting studies overwhelmingly take the present order of social

relationships as universal rather than as something that was created and may be transformed through human action".[11]

The diversity of the futures field as a whole suggests that this conclusion should not be uncritically generalised. We have noted that radical and pluralist perspectives are beginning to emerge, but their impact remains uncertain.[12] To some extent they may have been obscured by processes of professionalisation (see below) and what Miles calls "complacent visions of post-industrial society". But what is conspicuously lacking in the field is any coherent attempt to work through, and resolve, the contradictions that have arisen between the emancipatory intent of futures studies and the largely taken-for-granted social and economic structures which support its more formal manifestations and place arbitrary limitations upon what it may attempt to do.[13] If, as suggested, empirical/analytic social science traditions in the U.S.A. have helped to de-focus such problems then it is evident that work deriving from other traditions takes on increased importance. (Hence the need to utilise critical theory and hermeneutics.) Indeed, this helps to explain why these contradictions persist.

Clearly, when futures-related activities become too closely associated with centres of power, or dependent upon them, then the innovative and emancipatory potentials of the field will be reduced. The inherent conservatism of large organisations (including governments), their reluctance to countenance radical change and their difficulty in accommodating paradigm shifts all serve to support existing power structures and prevailing notions of 'the future' as a straight-forward and unquestioned extension of 'the present'. Thus professional futurists can be readily implicated in the attempts of existing elites to 'shape the future' in accordance with their own purposes and interests. While we should not portray professional futurists as 'helpless pawns of the establishment', their failure in Britain to develop anything approaching a broad futures community supports this interpretation.[14] In addition, the tendency of governments to reduce political and ethical questions to technical ones (eg of resource allocation), to support remote disputation between experts and to encourage further professionalisation (and fragmentation) within the field serves to further obscure the ideological dimensions of futures problems. In this context, political demands may subvert the critical, countervailing potential of futures study and create severe dissonances and contradictions for those whose individual views are at variance with official policy. (Indeed, the need to simplify problems and reduce dissonances may be another reason why some futurists attempt to claim 'objectivity' or 'ideological neutrality').

The dominance of vested interests in the futures field underlines the need for independence and pluralism. It suggests a need for more 'open-ended' research styles in which the 'situatedness' of the researcher, the ideological content of futures problems and the problematic status of many taken-for-granted assumptions are primary considerations. This is, without doubt, a more demanding proposition, and it may require special institutional support.[15] But something of this kind is needed if alternatives other than those favoured by existing elites are to achieve credibility. Miles is one of a very few critics who have considered this problem in any depth. He advocates an approach in which "the construction of viable sociotechnical organisations would be related to the

assessment both of the beneficiaries of alternative organisations and of the changes in power relationships that would be involved in actualising them".[16] The difficulties, however, are not merely procedural. In Miles' view, "forecasting is effectively monopolised by the perspectives under whose aegis its dimensions have been largely staked out". He continues, "far from being neutral, it exists to secure an alienated and alienating social order".[17]

Thus some future-related activities may be considered reactionary, ideologically naïve and serving to perpetuate the status quo. – In effect helping to impose 'the past' upon 'the future'. This has serious implications for the field as a whole. It implies that the latter may be more closely integrated into the existing sociopolitical order than has been realised and that some of its rhetorical claims (eg to help people 'choose' their future) may be correspondingly harder to substantiate. It suggests that alternative sources of funding, institutional support, training and so on must be found, and that truly critical styles of research should be developed. Perhaps above all, futurists should be alert to the possibility of their work acting in opposition to their ideals and subverting emancipatory potentials rather than strengthening them. This question will be approached from a different direction later.

As noted above, it is not necessary to conclude that the field as a whole has been 'tamed' and institutionalised. Forecasting is only one aspect of futures study, and perhaps not the most influential. The futures movement may yet prove to be a potent source of social and political innovation, and futures education could also become a powerful force for change. Certainly there are many who have advocated de-professionalisation, stressed the convivial and emancipatory potentials of futures study and written of the possibility of transcending existing social relations and power structures.[18] But it is perhaps too early to know how these developments will fare. While some futurists are aware of the dangers of ideological commitments to dominant social interests, a more reflexive approach requires a deeper understanding of the constitutive interests that underlie these problems, and indeed the orientations through which they are perceived and understood. It is therefore appropriate to turn to the work of Jurgen Habermas.

Habermas' account of 'knowledge and human interests'[19] is not without its problems, and critics have drawn attention to these.[20] For example, the 'quasi-transcendental' status of such interests is pre-supposed rather than proven. But if these are regarded as part of an interpretive scheme, then it is legitimate to bring them to bear on our present concerns. They derive from Habermas' ambitious attempt to develop a 'philosophical anthropology' which relates distinctive features of human existence to three cognitive interests which he regards as constitutive of knowledge. The three primary interests are held to be 'the technical interest', 'the practical interest' and 'the emancipatory interest'. These are summarised in Table 3.

In this scheme, technical knowledge corresponds to 'work' and the empirical/analytic sciences that are concerned with production and control (the application of technical rules to instrumental problems). The technical interest may be regarded as the 'lowest' of the three, but it is important to note that Habermas does not attempt to denigrate it in its

Table 3 Summary/outline of Habermas' Theory of Cognitive Interests

INTEREST	Life Dimension	Form of Knowledge	Knowledge Criteria	Type of Problem
Technical	'Work'	Empirical / analytical	Economy, efficiency, effectiveness	Technical / instrumental
Practical	Interaction	Interpretive	Achievement of communication and understanding	Interpretive understanding and practical choices
Emancipatory	Power	Critical	Achievement of emancipation and liberation	Normative: critique of domination, repression, mystification, institutions and distorted communication

proper place. Rather, his "primary object of attack is (the view) that this is the only type of legitimate knowledge, or the standard by which all knowledge is to be measured".[21]

As will be seen below, it is the predominance and overextension of technical interests into other areas of culture and life that constitute a major difficulty, rather than the mere existence of such interests (which are necessary for the resolution of instrumental problems underlying human existence). Indeed, the purpose in distinguishing between these constitutive interests is to show how a more balanced relationship between them is vital for futures studies, as for the wider culture.

The practical interest relates to human interaction. This is not a matter of technical rules but of communication and understanding, which are grounded in language and culture. As already noted, all disciplines and communication involve symbolic interactions which draw upon "a set of categories ....which are richer and more inclusive than those explicitly countenanced by the technical cognitive interests".[22] In Habermas' view, the disciplines that focus upon practical interests are the historical/hermeneutic disciplines. These, he suggests,

> gain knowledge in a different methodological framework. Here the meaning of validity of propositions is not constituted in the frame of reference of technical control ....for theories are not constructed deductively and experience is not organised with regard to the success of operations. Access to the facts is provided by the understanding of meaning, not observation. The verification of law-like hypotheses in empirical/analytic sciences has its counterpart here in the interpretation of texts.[23]

Hence the practical interest is not concerned with manipulation and the "technical control of objectified processes", but with attempts to clarify the conditions for intersubjectivity and communication. There is insufficient space to examine Habermas' theories of 'communicative competence' or the 'ideal speech situations' that serve as models for the realisation of practical interest.[24] But it should be noted that communication and understanding are conceived of as interpretive tasks that depend upon hermeneutic skills. This supports what has been suggested above about the 'situatedness' of the scientist, researcher or futurist, and the applicability of the revised view of science outlined there. It also has other implications for the development of critical futures study that will be set out below.

The third cognitive interest identified by Habermas is the emancipatory interest. This relates to questions of power and to the universal drive for liberation from oppression. It is precisely here that American futurism is at its weakest. Yet it is here in the critique of domination, repression, mystification, institutional inertia and 'systematically distorted communication' that truly critical forms of enquiry are engaged. Thus the particular value of relating this most fundamental human interest to futures studies is that it is in relation to just these issues that the field as a whole has most conspicuously failed to live up to its ideals. While the typology gives rise to further questions, it is very suggestive for present

purposes and certainly takes us a long way beyond the ideologically naïve critique of futurism examined above. It provides a more incisive vocabulary and helps to establish the need, and indeed the means, of a more analytic and reflective mode of discourse.

American critiques, we recall, tended to obscure the emancipatory interest by drawing on a predominantly empirical/analytic social science background and by addressing lower-order concepts such as 'subjectivity' and 'elitism'. In his own rather convoluted style, Habermas shows why this is inadequate. He writes,

> the systematic sciences of social action, that is economics, sociology, and political science, have the goal, as do the empirical/analytic sciences of producing nomonological knowledge. A critical social science, however, will not remain satisfied with this. It is concerned with going beyond this goal to determine when theoretical statements grasp invariant regularities of social action as such and when they express ideologically frozen relations of dependence that can in principle be transformed. To the extent that this is the case, the critique of ideology as well as....psychoanalysis, take into account that information about lawlike connections sets off a process of reflection in the consciousness of those whom the laws are about.[25] (My emphasis.)

In this view a critical social science is distinguished from more conventional approaches. The former is not concerned to established 'laws' which attempt to explain social behaviour, or indeed, to control it. Rather, the intention is to bring individuals to recognise, and to reflect critically upon, the more-or-less arbitrary laws under which they live and the skewed power relationship they represent, in order to change them. This is not, as some might suspect, a recipe for revolution, but a part of Habermas' attempt to articulate a critical social science oriented towards human emancipation. It is based in part on an ideal of self-reflection "which releases the subject from dependence upon hypostatized powers".[26] It is striking how these concerns parallel those of futurists. A major difference, however, is that Habermas is working at an explicitly metatheoretical level while, as we have seen, futurists tend to utilise theory in an unreflective, often implicit, manner. Yet Habermas' work is suggestive rather than definitive.[27] Apart from any theoretical objections, the opacity of his prose raises the question of who will constitute an 'effective constituency' capable of understanding and acting on his theories. Neither is it immediately within the population at large. Nevertheless, some valuable conclusions may be drawn.

In the first place, the theory of cognitive interests suggests that the futures field – at least in its institutional manifestations – has been unduly dominated by technical interests. That is, by notions of prediction, forecasting and control which have diffused outward from their earlier, more limited, technical/instrumental contexts (such as war-gaming and economic forecasting) to contexts where their dominance is inappropriate. Numerous futures texts which attempt to deal with social, cultural and ethnic issues continue to reflect this orientation.[28] The dissonances thus created are a sure indication of inadequate theorising and of the inappropriate extensions of the technical interest. (See below.)

Second, there are now more sound reasons for suggesting that futurists have paid insufficient attention to the practical interests in communication and understanding. Habermas' work helps to establish a rationale for improving the quality of communication and a critique of some of the impediments to this.[29] As with the revised view of science, it suggests that futurists could improve their communicative competence by recognising its foundation in a mutually-shared intersubjectivity. The hectoring tone of some futures writing, the spurious objectivity inherent in warnings and veiled threats, the dissemination of pre-given 'blueprints of the future' are clearly counter-productive and draw on unacceptable models of communication and human personality. In a truly critical approach these will give way to dialogue, negotiation, greater self-understanding and a sustained effort to develop genuinely open critical communities of enquirers consciously drawing on shared cultural resources and oriented towards the common good.[30]

Third, the Habermasian approach is suggestive for the evolution of more adequate theorising in the futures field. That is to say, when futurists attempt to deal with social and political problems (or the social and political dimensions of problems), some attempt should be made to draw upon empirical, interpretative and critical theories. It is necessary to reconcile and balance existing concerns with broadly technical and (to lesser extent) practical questions, with the explicit pursuit of emancipatory interests.[31] This, in turn, requires a more analytical and reflective consideration of ideological commitments on each of the three levels noted above. A continuous, dialectical 'tacking' process could then become established which would establish futures ideology at the highest, wholly legitimate, meaning of that term: that of 'practical philosophy'.[32]

3. Critical/Hermeneutic Refinements

It should now be evident that the hopes expressed by futurists for social change, transformation and resolution of global problems have been vitiated by a number of factors. Among these are generally inadequate conceptions of language, culture and social life. While no brief treatment of these can do them full justice, this study can suggest some of the ways that refinements derived from critical theory may be usefully employed in a revised perspective.

It was suggested above that most futures writers implicitly regard language as a neutral tool that can be employed to describe things 'as they really are'. Most commonly a problem, or potential problem is identified, analysed and some attempt is made to assess its importance. Recommendations for change in policy, behaviour, values and so on are then derived and 'modelled', or 'spelled out', as potential resolutions.[1] But the credibility of the latter is often minimal. In part this results from factors discussed above. But it is also a consequence of futurists' repeated failure to recognise how their attempts to communicate depend upon language, culture and tradition. From a hermeneutic viewpoint these are constitutive of understanding, and must be taken into account. Indeed, greater reflexivity is necessary not only to facilitate problem definition and

communication, but also to reveal aspects of futures problems that have received insufficient attention.[2]

Hermeneutics has been described as "the science of interpretation". Its task is to "make visible the meaning structures embedding in the lifeworlds which belong to the human expressions under study".[3] It is not concerned, as are the empirical/analytic sciences, to quantify measure and control. As Van Manen notes, "from the perspective of hermeneutics there are no such things as stimuli, responses or measurable behaviours; instead there are encounters, lifeworlds and meanings which invite investigation".[4] Again, Radnitsky, using Habermas' notion of fundamental human interests, distinguishes between the technical interest which "motivates research designed to provide the resources for keeping objective (or objectified) processes under control", and the practical hermeneutic interest in "the intersubjective mediation of participatory understanding".[5] As noted above, these interests and their associated disciplines are complementary, but focus on different sets of problems. Thus hermeneutics is basically concerned with communication and understanding, or, "the bridging of personal or historical distance between minds".[6] Since 'understanding' has been poorly conceptualised within the futures field and 'communication' related largely to technical developments, it is wholly appropriate to re-consider them from a hermeneutic viewpoint.

In this view man is regarded as a "self-interpreting animal". In part this is because "there is no such thing as the structures of meanings.....independently of his interpretation of them; for one is woven into the other".[7] As Peters stresses, "there is no pure starting point for understanding because every act of understanding takes place within a finite historically conditioned horizon, within an already understood frame of reference".[8] Hence, context-, or value-free knowledge is regarded as an impossibility. The meanings of all utterances depend on the language system and context, and hence upon shared presuppositions that shape our knowledge and understanding of the world. Furthermore, these fundamental presuppositions are not to be regarded merely as negative biases or prejudices (though they may take that form), but rather as functioning "to provide the basic framework or pre-understanding which make reflective understanding and articulated propositions possible".[9] As Peters notes,

> the problem....is not to discard prejudgements in order to arrive at an absolute objective starting point, but rather to determine what distinguishes legitimate prejudices from (those) which obstruct understanding.[10]

Thus hermeneutics has profound implications for the futurist. It suggests that instead of working from the premise that the observer can somehow 'neutralise' his subjectivity or 'stand apart' from what is being studied, he or she might rather embrace his/her own historicity and work from a reflective appreciation of it. That is to say, language, culture and tradition provide the very grounds of understanding. To become reflexively aware of these and to utilise them consciously as a resource is to greatly enrich the quality of one's social understanding and enhance the potential for effective action.[11] It is not, however, an easy task, nor one that leads to 'final' conclusions. It is (to paraphrase Taylor[12]) to first become aware of the way experience is structured by inherited meanings; second, to

understand something of the way that these are interpreted and shaped by language; and last, to take account of the observer's own explanations and interpretations. It is a continuing task, and one that seems to correspond to the 'highest' form of ideology, ie as a practical philosophy which incorporates the observer's own self understandings.

Pursuit of this socially grounded and historically conscious understanding is a vital necessity within a critical futures perspective. Without it the emancipatory potentials of the field cannot be properly articulated or escape a tendency towards instrumental ends (eg technological forecasting, resource planning, strategic contingency planning). It may be that this "dialectic of the open situation", as Radnitzky calls it, may appear abstract or obtuse to those whose perceptions have been shaped by a denial of historicity. But, given the futurist propensity for 'objectivity', for a stance presumed to be somehow 'above' social processes, it is necessary to reiterate that there is simply no neutral standpoint outside of history upon which the futurist can stand. To pronounce upon 'the future' thus requires not merely a deep appreciation of history, but also of the inescapability of historicity. One way to approach this is by way of the hermeneutic circle.

The hermeneutic circle (or spiral) involves a 'tacking' process between 'partial' and 'global' meanings (eg of a text or a problem) such that hidden meanings become accessible. As the observer, or as we would now say, the interpreter, immerses himself in the problem so the possibility of a 'conversation' arises and assertion can give way to genuine dialogue. According to Radnitzky this is a common pattern in "all (social) research (which) exemplifies a tacking between hermeneutic elements or phases....and checking elements or phases.....with empirical phenomena. (Thus) constructive and checking turns correct each other in a continuous dialectic".[13] Such an approach cannot, by its nature, produce 'final' answers, only more or less adequate ones. In this respect it cannot but reflect an inescapable existential uncertainty: (a characteristic of 'past', 'present' and 'future'). But its grounding in language, culture and tradition reduces uncertainty and, in contrast to empirical/analytic science, transforms the experience of historicity into a positive virtue. It brings an awareness of culture to bear on the practice of communication and the process of attempting to reach agreement.[14]

Hence the hermeneutic tradition can enhance the self-understanding and communicative competence of futurists, particularly those whose work has been influenced by positivistically-orientated traditions of enquiry. But there is another reason why hermeneutic insights are of particular relevance within the futures field. As Radnitzky notes, within this tradition, "communication is not limited to contemporaries but includes communication of the living with past generations though transmission and mediation of traditions".[15] Furthermore, he adds, our only choice is to "philosophise out of concrete situations by mediating, out of an engagement and out of a projective anticipation of the future, the heritage of tradition".[16] Later he continues,

> without such an anticipation of the consequences of present developments we cannot even describe these.....significantly. Without risk-taking there is no illuminating interpretation of the present situation. This interpretation is necessary precisely because we never stand at the end of history.[17] (My emphasis.)

In the perspective being developed here, these observations are invaluable. They support the earlier suggestion that the meaning of 'the present' could only be understood in relation to both 'past' and 'future'. These may now be viewed as part of the same 'text' or 'dialogue' between generations and traditions. Both represent 'alien forms of life' which need to be interpreted, or mediated unto the present. Or, to change the metaphor, the fabric of history is woven from interpretation and anticipation. It refers us back to what has been and forward to what might be. There is no 'past' in the sense of a completed totality, split from the 'present'. Equally, there is no 'future' that stands alone, unaffected by what has gone before. Both are indeed constitutive of the present in a process of unending mediation and change. To the extent that such mediation becomes conscious, and motivated by the highest (emancipatory) interests, then we may aspire to an ethic of improvement and human fulfilment. But if we remain unreasonable bound to the past and unwilling or unable to engage in these processes, we surrender to autonomous forces that make Dystopia unavoidable.[18] Here it should be noted that Radnitzky adds his weight to the futurist contention that 'the future' is inherently important. He writes,

> historical consciousness, the self-awareness in which the person becomes aware of himself as an individual development in time and of his participation in a collective history, is orientated towards the future. It implies a primacy of the future over the past.[19] (My emphasis.)

If this view is correct then futurists are right to suggest that the present temporal imbalance in school curricula may be damaging educationally and, indeed, socially. In this view, over-stressing 'the past' and omitting 'the future' can be accurately described as a recipe for confusion, and even one that "makes children's futures vanish."[20]

To summarise, an hermeneutic perspective highlights a need to revise futurists' understandings in varying ways, while at the same time helping to confirm the validity of their concerns and throwing new light upon them. In this view neither language nor viewpoint are neutral or objective. Each shapes, and is shaped and conditioned by the structure of inherited meanings and references. Communication is facilitated not by a denial of historicity, but by a conscious and reflective appreciation of it. It follows that since a fundamental equivalence is assumed between participants, metaphors for communication are not based on notions of transmission, certainty and control but on interaction and negotiation of meanings in which final answers are neither expectant or sought. The hermeneutic circle exemplifies this approach in research. More crucially, by seeing the mediation of tradition as constitutive of the present and drawing both on 'past' and 'future' hermeneutics articulate the central project of futures study and reveals itself as a necessary adjunct to this. If critical futures study is a sine qua non of any defensible notion of curriculum, then critical theory and hermeneutics stand in a similar relationship to futures study itself.

It is evident from the above that the methods, language and intentions embodied in empirical/analytic science have limited applicability in the future field. Hermeneutic and

critical approaches appear to be much more congruent with its expressed concerns, yet are greatly under-utilised. For example, expressions of concern for stakeholders (ie those affected by some proposed change) may actually amount to little without hermeneutic competencies and a truly critical purchase on the otherwise occluded questions of vested interests, ideology and power. Similarly, notions of choice and control become problematic when the products of 'intensive rationality' impact upon pre-existing traditions and social forms. As Habermas puts it, "new technical capacities erupt without preparing into existing forms of life-activity and conduct."[21] The consequences of this represents a central problem (or an interlocking set of problems) for futurists and educators alike. But while the former have made some attempt to grapple with it (albeit with inadequate conceptual tools), the latter have, on the whole, yet to recognise its significance for curriculum theory and practice. This then, is a crucial area which a critical approach to futures can hope to illuminate, and the discussion which follows prepares the way for a consideration of curriculum implications in a section four.

Much of the futures literature expresses a concern for the wider implications of technological change. Indeed, technological forecasting is a major branch of futures research.[22] Many works address the issue in terms of 'anticipation', 'regulation' or 'control'. That is to say, technologies are regarded as essentially neutral tools that require enlightened decision-making.[23] But a continuing failure to operationalise these notions (illustrated most dramatically in the arms race and regularly recurring 'adaptive crisis') suggests that there may be something badly wrong with this interpretation.[24]

It was suggested above that science could not be considered neutral; that it embodies numerous value commitments and could not be separated from wider frameworks of understanding and evaluation. To claim neutrality was only to obscure ideological commitments and presuppositions. So, contrary to the prevailing view, it is entirely consistent to suppose that the products of science are not neutral either. Indeed, advanced technologies may be regarded as "tools without handles", not amenable to control in the usual sense of the word. As Winner notes, "far from being neutral.....they provide a positive content to the area of life in which they are applied, enhancing some ends, denying or even destroying others....."[25] Thus 'mega-technical systems' often appear to override human intentions. Winner is of the view that

> "control" and "use" just don't apply here. The direction of governance flows from the technical conditions to the people and their social arrangements and not vice-versa. What we find.....is not a tool waiting to be used but a technical ensemble that demands routinized behaviour.....We do not use technologies so much as live them.[26]

It is not possible to summarise Winner's detailed argument here. But his conclusion is basically that our technological 'means' have become self-perpetuating 'ends' in their own right; 'ends' which require a 'reverse adaptation' (Galbraith's term) of society to their own "autonomous needs", and the suppression of human purposes. Now it is possible to criticise Winner's thesis on various grounds. For example, 'means' and 'ends' are not entirely independent. Again, many would question whether "human purposes" are

so thoroughly subverted by technologies which elicit our wonder and even our admiration. Are we really so helpless? Such questions are not easily resolved. The 'technological domination' thesis is admittedly provocative, but it should be noted that it has gained qualified support from a wide range of accomplished authors and critics.[27] It is therefore worth considering it from the metatheoretical perspective provided by critical theory.

In this view, advanced technologies are regarded as products of an instrumental mode of rationality concerned with efficiency, economy and the matching of means to given ends.[28] Similarly, the dominance of advanced technologies is related to an over-extension of the technical interest into human life and culture. Thus the main points of the 'domination thesis' are conceded, but not the view that there is nothing to be done about it. On the contrary, critical theory is, on one level, an extended discussion of just what should be done. However, the pre-eminence accorded to technology has become so 'normal' in industrial societies that it has become difficult to reflect critically upon the fact. As Radnitzky notes,

> that the allocation of the monopolistic position to purely technical interests goes unnoticed is due to the fact that it is so deeply rooted in our form of life.....it is rooted in the basis of our industrialised society – technology; the basis upon which our system of life literally depends for its survival (and.....is threatened today for the same reason).[29] (Emphasis in original.)

If this is correct, industrial societies and their major institutions may be permeated by 'technocratic consciousness'; that is, an over-ready acceptance of technological imperatives and their humanly under-dimensioned categories and purposes. To the extent that technocratic values became dominant, knowledge that was not technically useful could be progressively excluded. Were the process to continue, human beings would "lose their identity."[30]

Clearly this is not an attractive prospect. Neither is it one that is immediately obvious within the restricted perspectives of daily life. But Radnitzky and Habermas both believe that "many parts of the Anglo-Saxon world (have) already gone far in this direction".[31] Indeed, analysis and intuition meet and complement each other on this very point. For it is precisely this fear of dehumanisation and 'loss of agency' that imaginative writers have been articulating for the greater part of the 20th century. What is authentically shocking about this is not merely that human beings have, in some sense, 'lost control' over what they have collectively created, but that their responses have been so equivocal and slow.[32]

Habermas is clear that in its correct, subordinate, place the technical interest is vital for survival. But when it becomes elevated into a dominant ideology it "is more irresistable and further-reaching than (class orientated) ideologies of the old type (since it) affects the human race's emancipatory interests as such".[33] In his view

> technocratic consciousness reflects not the sundering of an ethical situation but the repression of the "ethics" as such as a way of life....(It) makes the practical

> interest (in the maintenance of understanding and communication) disappear behind the interest in the expansion of our power of technical control.[34]

Hence a critique of the "new ideology" needs to penetrate beyond class conflict to consider the "fundamental interests of mankind as such, engaged in the process of self-constitution".[35] It is notable that the interest (in Habermas' terms) in the power of technical control does not entail greater freedom for individuals. Their 'control' is diminished in part because political power, and access to powerful technologies, is not evenly distributed, but more importantly because the very grounding for an "ethical" way of life is being destroyed. Thus the solution to the problem of technological domination is not technical in nature. Instead,

> it is.....a question if setting into motion a politically effective discussion that rationally brings the social potential constituted by technical knowledge and ability into a defined and controlled relation to our practical knowledge and will.....Only if we could elaborate this dialectic (of potential and will) with political consciousness could we succeed in directing the mediation of technical progress and the conduct of social life, which until now has occurred as an extension of natural history.....The irrationality of domination, which today has become a collective peril to life, could be mastered only by the development of a political decision-making process tied to the principal of general discussion free from domination.[36]

This is, perhaps, the closest one can come in the present context to a 'solution'. Critical sociology, and the work of Habermas in particular, attempts to define the conditions necessary to free men and women from domination and instrumental modes of rationality.[37] It suggests that the pre-eminence achieved by the latter violates their higher interests in communication and emancipation, and that further, the occlusion of these interests will continue so long as "general discussion free from domination" remains unattainable. Thus the problem is political, and, in its deepest sense, human. That is to say, we need to work toward the establishment of participatory forms of decision-making and also to 'reclaim' those aspects of our being which have been suppressed. It implies a kind of Hegelian Sittlichkeit (autonomy in community), an attempt to re-assert human identity which has implications for futures studies, and indeed, for curricula informed by them. As Mumford puts it (in his own characteristic style),

> if technics is to be brought back again into the service of human development, the path of advance will lead, not to the further expansion of the Megamachine, but to the deliberate cultivation of all those parts of the organic environment and the human personality that have been suppressed....[38]

Clearly these are contentious issues, and critical sociology itself attracts further critique.[39] But the issues raised are generative for this enquiry precisely because in regard to conventional futures work they have not been adequately conceptualised, and in regard to the secondary curriculum they have hardly been addressed at all. This discussion suggests that the debates about technology in the futures field have been too shallowly based on

hardware and somewhat naive extrapolations. Again, the writers drawn upon here (who would not, incidentally, regard themselves as futurists) suggest that it is dangerous to regard technology as neutral. Rather, it is seen to impact upon society and on lives at many levels (many of which are hidden) and to threaten people even as it supports them. Thus to understand and 'control' it is not merely a matter of the external regulation of hardware, but of developing critiques and practical responses at the political, ideological, and epistemological levels. Furthermore, in relation to curriculum tasks, this interpretation exemplifies the need to actively mediate between inherited meanings and future potentials. Since technology has, by way of its revolutionary and destructive power, rendered the future doubly problematic, it is revealed as an issue of paramount importance for education at all levels.[40]

It is no exaggeration to suggest that without critical/hermeneutic approaches and concepts futurists and educators will be unable to come to grips with some of the most fundamental aspects of the human situation (or the most fruitful ways of conceptualising this) at this time in history. As Taylor notes, "mainstream social science lacks the categories to explain the breakdown of meanings which has occurred in technically advanced countries".[41] (My emphasis.) In his view, the only way to accomplish this is "by trying to understand more clearly and profoundly the common and inter-subjective meanings of the society in which we have been living".[42] This is clearly a critical/hermeneutic task. Through these disciplines we may attempt to 'interrogate' traditions in order to evolve new, or renewed, meanings that better satisfy our existential needs. As Peters puts it,

> tradition provides the basis for interpretation, invites new interpretation, and this renovating interpretation keeps the tradition alive... Tradition is always in movement, always in transmission, because the historical situation is undergoing constant change. The movement of interpretation is evoked by this very movement of transmission. The two together constitute the circular movement of the hermeneutic event.[43]

Understood in these terms, critical futures study may be distinguished from more conventional approaches. Its primary concerns are not with prediction, forecasting, instrumental approaches to the issue of 'control', but with participation in the re-interpretation of cultural traditions and the explicit pursuit of emancipatory interests. Indeed, it is in the mediation of continuity and change that critical futures study contributes most directly to a renewed understanding of curriculum tasks.

3.2.3 An Outline of Critical Futures Studies

It was suggested above that the future field embodies attempts to come to grips with challenges felt to be distinctive to the late twentieth century.[1] Ferkiss was quoted to the effect that, in seeking to be free, men sought control over their destinies, and thus were obligated to anticipate them, Again, Jouvenel and Radnitzky, among others, argue for the primacy of the future toward which all projects, goals and intentions are oriented.[2] But the 'standard model' of futures study does have serious shortcomings. They include tendencies toward exaggerated rhetoric, the pursuit of over-ambitious goals and ideological naivety. It was also suggested that the theoretical foundations of the field were weak. Evidently many futurists, particularly in North America (where the field has seen its fastest growth) have worked with inadequate conceptions of science and technology, social change, effective communication and so on. Such difficulties have restricted the emancipatory potentials of the field and impaired its application and use in other fields, including education.

The venture into metatheory attempted to resolve, or clarify, some of these problems and to secure a more defensible conception of futures study. This was termed 'critical' in part to declare its relationship to critical theory, but also to suggest a similar ideal of self-reflection and self-analysis which continually subjects its own assumptions and premises to questioning. Hence, far from producing plans, blueprints or grandiose world-saving schemes, this approach suggests that it is fruitless to rely upon them or to search for 'final' or 'complete' answers. Rather, it aspires to participate in a continuous adaptation to changing conditions. (See Section 4.2.)

Thus the recourse to aspects of the sociology of science, critical theory, hermeneutics and speculative literature constitutes a kind of 'interpretive filter' which has provided higher-order concepts and provided a basis for revising and reformulating some of the existing concerns of the futures field. This is not to suggest that such concerns have been invalidated; rather that an attempt is being made to elaborate them in more productive ways.

It is important to recognise that there is no single unambiguous path to a critical futures perspective. The ideas presented here represent one individual's assessment of several rapidly developing fields. Furthermore, many refer back to ill-understood problems and processes.[3] Clearly, more authoritative formulations must await the establishment of critical research community and the development of a research tradition in this area. Thus what follows is indeed tentative, but it should provide foci for further discussion, elaboration, revision and enquiry. Nevertheless, some concerns of a critical futures approach can now be summarised. They imply a 'central project' which is briefly explored in this chapter through a review of common themes in the work of three outstanding futurists. The resulting perspective is then employed in section four in an attempt to cast new light on curriculum renewal.

Figure 5 outlines a route to critical futures studies and some of its consequences. In this perspective (following Habermas) a presumption is made in favour of the emancipatory

interest and hence of the primary of the socio/political domain over the technical/instrumental one.[4] Thus the active pursuit of human emancipation becomes a major concern. This involves not merely the critique of forms of domination and repression (important as this is), but also a more positive preoccupation with the development of human potential and the evolution of consciousness.[4A] Science and technology are not regarded as neutral, but as having distinct and powerful ideological functions which exert a shaping influence on human existence at all levels. The deeply ambivalent consequences of modern technology identify what Harman calls 'the control dilemma' as a central problem. (Harman 1979, Chapter 6.) The occlusion of the ideological dimensions of technology coupled with our almost symbolic dependence upon it, justify the attention we have given to it in this context. To transcend ideology therefore involves the analysis of dependencies, costs, hidden relationships; developing critiques and practical responses; and most important, developing the social capacities to re-assert autonomous human purposes. But since technology alters what is possible and conceivable (a theme elaborated at length in speculative literature), no permanent resolutions of these issues can be envisaged. Thus, as is the case with history, forecasting seems constrained to remain radically incomplete, and the problem of control has less to do with regulation of hardware than it does with attempting to achieve what Habermas calls "discussion free from domination" and a measure of social consensus.[5]

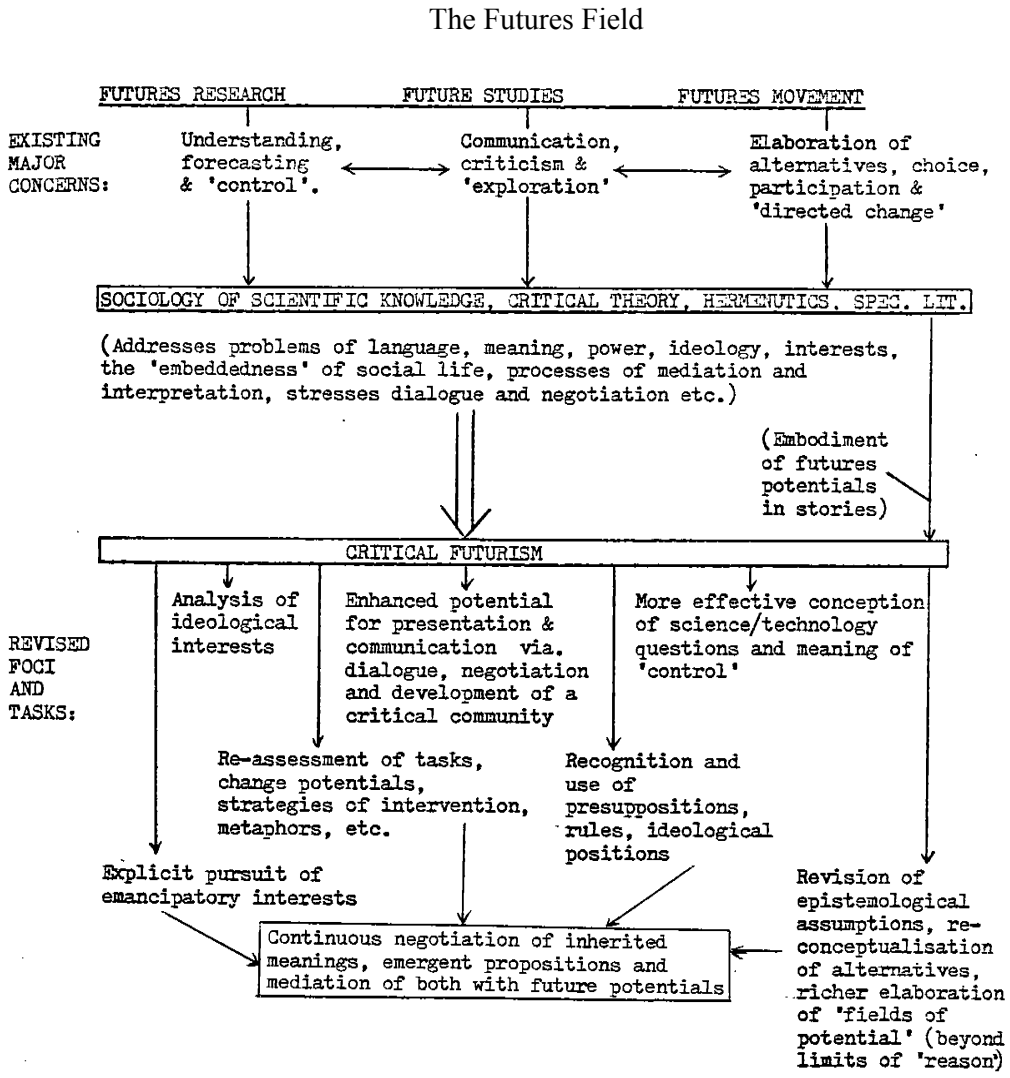
Again, as we have noted, a critical perspective encourages the development of reflexivity and greater self-awareness. It suggests that the researcher be alert to the ideological content of futures problems, the influence of vested interests and power structures. Furthermore his or her grounding in, and debt to, the traditions and speech communities of a particular cultural milieu should be recognised and acknowledged. It is from such sources that futurists draws the understandings that allow them to 'confront the future'. While some of the latter are rendered problematic by rapid change, others provide a measure of stability and sources of identity and meaning.[6]

Recognition and acceptance of historicity renders to objectivity and 'value-free knowledge' insupportable. Hence strategies of intervention and communication can be informed by recognition of the need for dialogue, negotiation and mutual co-understanding. In this way the impossible goals of an immature futurism can be superseded. Progress is seen not to reside in these projections of self-importance, but in the process of joining with others to reconceptualise human dilemmas, to assist in articulating their needs, goals and understandings[7] and in the development of critical, self-aware communities of enquires.[8]

Finally, the unbound speculations of imaginative literature continue to elaborate future potentials, thus making them accessible to understanding, exploration or refutation. The major thrust of dystopia is not to suggest that we resign ourselves to the inevitable. Rather, by dramatising choices it invites us to respond in active ways to new challenges and prospects. As noted above, other types of stories undermine the taken-for-grantedness of everyday life, reveal historical contingency and illustrate the interdependence of 'past, present and future'. The culturally grounded and intuitive origins of stories make them immensely useful in a field that has been so strongly

Figure 5

A Path to Critical Futures Studies



Implications include: the clarification, revision, re-assessment of futures field, improved articulation with real life situations, problems and situations. More realistic goals and task-setting. More effective embodiment, communication and deployment of resources and ideas. Improved rationales for educational contexts; leading to greater credibility and meaning for educators and curriculum theorists. Makes possible a process of mutual self-reflection between ‘futures studies’ and 'curriculum studies', and the development of explicitly future-oriented strategies of curriculum change.

influenced by pragmatic and rationalistic tendencies. Through them it is possible to gain an imaginative grasp of possible future states which could otherwise elude us.[9] This enquiry now turns to consider how the work of contemporary futurists can help articulate the central project of a critical approach.

It was suggested in section two that the problem and crises of the contemporary world echoed a deeper, epistemological crisis: a breakdown, in fact, of inherited meanings, with a consequent constriction of temporal boundaries,[10] and a marked loss of social confidence and cohesion. That this is not merely an epiphenomenon is confirmed by Kumar. He writes:

> at the objective level, industrialism has run into the ground. For two centuries it has developed its institutions and technology on the basis of....unchanging expectations as to both the material resources and the political configuration of the world. Both these premises are now clearly revealed as shaky, and a most precarious basis on which to confront the future.[11]

Taylor goes even further. As we noted above, he believes that

> the discipline which was integral to the civilisation of work and bargaining is beginning to fail. The structures of this civilisation, interdependent work, bargaining, mutual adjustment of individual ends, are beginning to change their meaning for many, and are beginning to be felt not as normal and best suited to man, but as hateful and empty.....We are (he continues) caught in the web of meanings which has gone dead for us. Hence past, future, earth, world and absolute are in some way or another occluded; and what must arise is an identity crisis of frightening proportions.[12]

Thus it is not so much that family, the city, the factory and the school per se that are losing their legitimacy, but certain of their underlying cultural supports. Among these may be counted the Protestant work ethic, the assumed beneficence of science and technology, the ideology of continuous economic growth, patriarchy, G.N.P., the dominance of market-orientated values, the dualistic split between man and nature, and so on.[13] Each of these is now either in question or has, in some respect, broken down. None may be considered axiomatic, and the psycho/socio/economic world they supported is under great stress.

Taylor's diagnosis is justified. The breakdown is evident on many levels, but it not necessary to conclude that there is little to be done about it. The 'failure' of industrial era worldviews may provide a seedbed for new ideas, assumptions, values and so on. This was the burden of Henderson's contribution. If the belief-systems underlying industrialism are failing then we must scan the future for now (or renewed) understandings, and learn to manage the transition we are living through.

In this climate of uncertainty critical futurists have at least two major concerns. The first is to participate in the re-interpretation of inherited traditions and meanings. The second

is to negotiate with wider publics the validity of emergent propositions and meaning. Together they constitute the central project of critical futures studies: an attempt to draw on shared cultural and symbolic resources to 'live at the breach' of change, to embrace uncertainty and, with others, mediate the unfolding of futurity. A brief look at the work of three major futurists will show how the outlines of such a project may already be distinguished. While this does not yet reflect a truly critical theoretical orientation in the way that this study seeks to define it, it does provide a suggestive model of the processes that such an orientation hopes to inform, illuminate and extend.[14]

Markley's 'Changing Images of Man' (1974) in part represents an early attempt to identify obsolescent premise characteristics of the industrial area and to assess some of the emergent understandings which may replace them. Among the former he lists the belief

- that individual identity is to be equated with material possessions....and/or occupational status....;
- that mankind is separate from nature, and hence it is our destiny to master nature;
- that people are essentially separate, so that little intrinsic responsibility is felt for the effect of present actions on remote individuals or future generations;
- the progress is synonymous with the growth of GNP;
- that there is freedom in affluence;
- that both societal growth and protection of one's own interests are best served by competitive aggressive behaviours;
- that any technology that can be developed, and any knowledge that can be applied, should be;
- that the search for knowledge is appropriately dominated by utilitarian values....science supported to the extent that it promises new manipulative technologies;
- that the aggregate of specialised experts constitutes wisdom;
- that the future of the planet can safely be left to autonomous nation-states, operating....independently.[15]

It is not necessary to assess the veracity of these particular points. Their significance here lies in the fact that they represent an attempt to distinguish just which of our inherited meanings have 'gone sour'. As such they do not represent a rejection of history, culture or tradition, but a conscious attempt to come to grips with breakdowns of meaning. The analysis and reinterpretation of inherited assumptions represents a positive response to existential uncertainty, a kind of ground-clearing exercise which permits the emergence of new, or renews, understandings. These may take many forms: rules, values, paradigms, myths, metaphors and guiding images of various kinds which permit reconceptualisations to emerge at every level.[16] This may be distinguished from attempts to re-think problems in their original terms, - an approach which is arguably less innovative and less productive.[17] The more thorough-going the reconceptualisation, however, the more likely it is to encounter resistance or incomprehension on the part of those who remain committed to earlier frames of reference. This is a major problem in curriculum

innovation as noted above. Its resolution at any level depends significantly upon hermeneutic competencies, a willingness and ability to negotiate meanings and mediate between different frames of reference.[18]

Buckminster Fuller's work illustrates some of these issues. His broad overview of the transition from industrialism and his image of the "co-creative human" are based on evolutionary and eschatological perspectives which are clearly divergent from many taken-for-granted Western/industrial assumptions. Fuller believed that we are now at a critical point in our development as a species and that, with the knowledge at our disposal, we have the power to begin to participate consciously in the process of evolution. His practical involvement in technological innovation suggested to him that existing technologies could be used to "provide self-sufficiency for all people and to transcend the limits of the human condition".[19] Among his proposals were an international energy network and the full utilisation of the new information technologies to facilitate a "swift reorientation of humanity's reflexes...."[20] Nevertheless, this optimistic vision was tempered by a recognition that "social emergencies" might occur before existing political leaders would act decisively.

It is not possible to do justice to Fuller's vision here: to his view that "we are evolving from the phase of separate individuals and nations to an organically interrelated planetary system"; or to the view that it is meaningful to speak in terms of accepting personal responsibility for the further evolution of the planet.[21,22] Ideas of this kind clearly rest upon assumptions and values that are not part of industrial culture. But as Hubbard correctly points out, "what seems like naive idealism becomes prophetic clarity when viewed from an evolutionary perspective".[23] To begin to understand proposals, interpretations and images of this character requires immersion in, and a hermeneutic appreciation of, emergent world views. This is not to suggest that emergent propositions should be uncritically assimilated, only that they be given a sympathetic hearing.

There exist strong cultural and academic barriers to the reconceptualisation of inherited meanings.[24] But it is evident that significant numbers of people, far from accepting the status quo or the inevitability of dystopia, are generating images of possible futures that are positive, yet depart from Western models.[25] There is no shortage of new images of 'man',[25] new attempts to synthesise post-materialist world views,[26] and innovative living arrangements.[27] That many of these go unnoticed and unrecognised is indisputable.[28] But Elise Boulding is emphatic that "new images generate new behaviour possibilities".[29] Although she admits that the process involved remain obscure, her view is that certain images become "selectively empowered", and "explode later...into the realised future".[30] She continues, "in any cultural epoch, only certain images of the future out of a much wider pool....develop enough cultural resonance to affect process, and to move towards actualisation".[31] In this view, innovation in culture is closely related to the production and utilisation of appropriate images. Where 'future imaging capacities' are impaired or underutilised, social adaptability seems likely to be reduced.

Taken alone, the work of individuals in the futures field does not carry is very far. But together it illustrates what may be the 'basic movement' of critical futures study. This

may be characterised by three broad phrases, regardless of the level at which it was applied. These are:

1. Analysis of the breakdown of inherited meanings.
2. Reconceptualisation via 'new' myths, paradigms, images, etc.
3. Negotiation and selective legitimation of new meanings, images, behaviours, etc.

This 'cycle of transformation' had analogues in other areas. According to Markley these include myth, science, psychotherapy and general creativity.[32] Furthermore, the cycle has no end. Each resolution is temporary, and provides the basis for further transformations. In this respect it recalls the hermeneutic spiral, discussed above. Thus, at the level of macro-history, the achievement of a successful transition to a post-industrial society would still prefigure further breakdowns of meaning and a repetition of the cycle. At the individual and institutional levels this process would occur much more rapidly.[33]

The recognition of continuous and pervasive change which is implied by this view, has far-reaching consequences for the present enquiry. It is a commonplace in the futures field that rates of change have accelerated and that people find themselves overtaken by developments which might have been less surprising given a longer time perspective.[34] But an imaginative and intellectual grasp of the cycle of transformation discussed here requires a sense of social process that looks back and forward in time. Clearly a strategy is required to convey a measure of stability-in-change, a sense of perspective encompassing 'past' and 'future'. Elise Boulding has provided a potential resolution that is elegant, yet has an appealing simplicity. She suggests that we learn to think in terms of a "two hundred year present." This she writes,

> is not too long and not too short....Its chief virtue is its organic quality....It is a continuously moving moment, always reaching out one hundred years in either direction from the day we are in. We are linked with both boundaries of this moment by the people among us whose lives began or will and at one of these boundaries....It is our space, one that we can move around in directly in our lives, and indirectly by touching the lives of the linkage people, young and old, around us.

In the present context, this proposal has obvious attractions. It is fully congruent with a view of 'history' and 'futures' as each compromising part of a broader enterprise. It provides an opportunity to free ourselves from temporal provincialism and permits us to view change in a wider context of continuity. Some indication of the potential of the idea can be gleaned from Hopkins' evocative account of a 150 year historical perspective. This was achieved by merging his own biography with that of his grandfather to form "a single historical memory and a single historical experience".[36] If we add to this the images, myths, emergent understandings alluded to above, and the varied resources of speculative literature, the practicability of a "two-hundred year present" can be appreciated. It emphasises the interdependence of 'past, present and future', the web-like nature of causality which unites past events, present choices and future potentials.[37]

Such a view which links ‘past’ and ‘future’ in a continuous stream of events and interpretations that are ever renewed, ever renewable, lies at the heart of critical futures studies. Just as there is no ‘objective’ viewpoint outside of history, nor can there be a perspective outside of time unaffected by change. Thus the human species must learn to scan the spatial and temporal environment systematically, interpret their discoveries, and negotiate them with others in a continuous process of mutual adjustment and change. In this view the control of our technical ‘means’, the health of the biosphere, the survival of our institutions cannot be secured by pursuit of a mythical ‘steady state’, but only by dynamic equilibria founded on adaptation renewal and transformation.[38]

If we wish school curricula to reflect these processes then it is necessary to develop strategies and approaches which will permit them to actively mediate past, present and future. In part, this would involve learning to adapt sensitively and continuously to the turbulent milieu in which they were located. However, this takes us beyond traditional notions of curriculum to a somewhat different view that is set out below.

Section Four: Educational Responses to Uncertain Futures

It is in the nature of education to challenge the existing social and cultural order, whatever that order may be, and to find ways of promoting qualities, interests, processes and structures in the cultural domain of meaning and values which by their nature would be likely to be in opposition to any established social order. This is only to reiterate an ancient view of education, namely that it is a critical, reflective process one of whose primary functions is to question any pre-established order, and to equip learners with the means whereby they can question the very processes whereby they have acquired knowledge and understanding.

- Malcolm Skilbeck, 1981.

4.1 Education and the Future in Two Cultural Contexts

Sections two and three have suggested that the futures field contains numerous implications for the conduct of education. Some of these are controversial and challenge the basis of traditional assumptions.[1] Certainly 'equal treatment' of past and future would imply far-reaching changes in present pedagogic practices. (See below.) Yet conceptual and theoretical difficulties in prevailing conceptions of futures studies led to an attempt to re-interpret futures concerns through the critical 'filter' described in Chapters 3.2.1 to 3.2.3. It was concluded that the central tasks of critical futures studies involve the mediation of traditions and the negotiation of emergent meanings. In this view, 'futures' is reconciled with 'history' in the continuing re-construction of 'the present'. Furthermore, the latter embraces not merely the fleeting moment of immediate experience, but may be legitimately extended to include broader spans of space and time. The discussion has necessarily been abstract, ranging into difficult areas of metatheory. But it is now appropriate to adopt a more concrete approach and to examine educational responses to 'the future' in two contrasting contexts. This will illustrate some of the limitations of existing approaches to futures education, reveal some of its potential and lead to the final stage of the enquiry.

The next two chapters look at the nature and development of futures education in the United States, and then at ways the futures themes have been treated in Britain. This is not to suggest that significant developments have not occurred elsewhere. But an adequate international survey of the full range of futures-related educational activity is well beyond the scope of this work.[2]

It is useful to contrast developments in Britain and the United States first because it is within the latter that the futures field has developed most rapidly and the practice of futures education has grown into a distinct and pedagogic tradition. An appreciation of the practical achievements of educational futures work provide a concrete example of the utility of this field and is suggestive of what might be attempted elsewhere. But the relative weakness of its theoretical foundations indicates where further work is needed and helps to justify the adoption of a truly critical approach. Second, since a major purpose of this study is to contribute toward a reconceptualisation of curriculum problems, it is important to try to account for the relative failure of futures concepts and perspectives in Britain. Clearly, any attempt to apply futures perspectives to the curriculum and to develop innovation strategies must rest not only on a view of their educational potentials, but also on an understanding, however provisional, of impediments and counter-pressures.

The contrasts between English and American responses are striking. Following an analysis of these the study will attempt to draw together the several threads of the argument in an outline of critical futures contributions to curriculum renewal in England and Wales.

4.1.1 Aspects of Futures Education in the United States

Perhaps the most striking fact about futures education in the United States is its steady and continuous growth since its inception in the mid-1960's. According to several accounts the initial impetus was provided by the publication in 1965 of a magazine article by Toffler which outlined the "future shock" thesis.[1] Despite serious flaws in this and the later book of the same title (see above, chapter 3.1.3), the argument appeared persuasive. While not wholly original, it was nevertheless the first popular work to dramatise the view that rapid social economic and technological changes were leading to a profound crisis of identity, undermining peoples' sense of the past and rendering their futures increasing problematic. Clearly, it tapped widely felt fears, and helped to focus a strong upsurge of concern for 'the future' in several Western countries.[2]

The first recorded university and high school course in futures study too place in 1966, both involving Toffler in person.[3] Initially, the growth of such courses occurred most quickly in the higher education sector, such that by 1970, some "80 institutions of higher learning were offering futurism or "tech. forecasting" courses" (Sic).[4] By 1973, "there were approximately 400 colleges and universities in the United States offering futures courses".[5] During this period, growth at the elementary and high school levels had been slower. But, with the support of the then Office of Education, five pilot projects were initiated in 1967, and two of these were transformed in the following year into full scale policy research centres, one at Stanford University, the other at Syracuse. These carried out research into "methodologies specific to future studies", produced "specific material for use in futures education programs" and "also played a role in legitimising the growing interest in futures education".[6]

However, as Kauffman and Stirewalt emphasise, much of the early innovative work in schools derived not only from formal efforts but also "from the interest of a tiny minority of teachers, administrators and researchers communicating among themselves through both formal and informal networks".[7] A combination of these efforts raised the number of schools "providing futures studies instruction" from about 30 in 1969, to nearly 200 in 1974.[8,9] Further support was provided by the establishment of post-graduate and teacher-training programs at several universities. According to Kauffman, the first of the latter, the 'Future Studies Teacher Preparation Program', was established at the University of Massachusetts in 1972. He adds that by 1974 "the educational establishment suddenly became aware of, and began to respond to, the growing interest in future studies at the elementary and secondary levels".[10] In that year a number of new publications appeared, and several new conferences and courses were held. For the first time, the number of school teachers in the field appeared to exceed that of academics in institutions of higher education.[11]

Problems of definition make it increasingly difficult to assess the number of schools incorporating future-oriented elements in their curricula, but a survey carried out in 1978 identified over 400 futures programs.[12] Wooddell notes that "while it is impossible to enumerate all the future study or futures-oriented courses and programs in the late 60's and early 70's, those .... which have been documented suggest a nearly exponential growth of futures education".[13] By the mid 1970's it appeared that futures education, as a

distinct and recognised field, became self-sustaining. In part this was due to a continuing growth of university-based courses which enabled "members of the futures movement .... to train (and thus multiply) their own successors".[14] In part also, it resulted from a combination of greater visibility and growing credibility which, in turn, attracted support from other organisations and interest groups.[15] Most importantly perhaps, the number of practitioners in the field had, by the mid 1970's, reached a 'critical mass' capable of sustaining its own journals, conferences and organisations. Chief among the latter is the Education Section of the World Future Society (WFS) which in 1979 had over 1,350 registered members.[16] In addition there is a growing literature and body of research which, despite recent economic stringencies, suggests that in the United States, the field has achieved viability.[17] But the extent to which this rests upon the institution of the school as it presently exists is unclear. A consistent theme within the field is the extent to which conflicts exist between it and schooling per se.

The ambivalence of many futurists toward schools is well brought out by Wooddell, who writes, "education has not been overwhelmingly popular in the literature of futures study". He continues, "especially in its current highly institutionalised form (it) is often considered more a part of the problem rather than a possible cure".[18] However, since there are few existing alternatives educational futurists have concentrated on bringing about small-scale internal changes in the short term, and arguing for the transformation of schooling in the longer term. Various criticisms of the existing school system are advanced in support of this view. Chief among them is that "schools face backward toward a dying system, rather than forward to the emerging new society".[19] Leaving aside, for the moment, the question of how this "new society" may be perceived or constituted, it is evident that futurists believe that schools are "caught in the past". Writing of the curriculum in the mid-1970's, Kauffman suggested that "one can only conclude that it was designed as a preparation for adult life in the 1950's and 1960's".[20] Glines goes a good deal further. In his view "current educational systems are obsolescent", their curricula inappropriate to the conditions in which we now live. He writes "instantaneous retrieval of information not only ends jobs in the world of work, it ends subjects in the world of learning".[21]

Observations of this kind are, of course, controversial and raise issues that cannot be pursued here. However, as suggested in part one, the view that school curricula are past-oriented and that they exhibit profound 'temporal lags' cannot be readily dismissed. Perceptions of this kind clearly form part of any rationale for more future-oriented approaches. Thus, American futurists appear to regard their educational system "as a rear-view mirror, reflecting the established values and objectives of an earlier time".[23] As Bowman (et al) comment,

> the school curriculum – in a word – is history. We have generally interpreted education as history, and believed that the future would be an extrapolation of the past. We assume that if we do a good job today, tomorrow will take care of itself. We are (they add) already living on borrowed time.[24]

This passage highlights two of the themes underlying American conceptions of futures education. These are the themes of 'change' and 'crisis'. As Wooddell expresses it,

> futures education is based on a view of society and the world which, first, acknowledges and emphasises the rapid and pervasive change which has characterised the past three decades, and second, contends that the change to date, regardless of whether its pace continues to accelerate or it slows ..... will create a much different world in the near future.[25]

Or again,

> there is now emerging an alternative conception of education which focuses on the need to prepare individuals to live in rapidly changing environments. Termed 'futures education', this approach accepts the existence of change and uncertain futures. It focuses upon provided direction and assistance in personal characteristics and skills which appear to help the individual in varied situations. (Sic)[26]

Thus, far from being concerned with reproducing a given culture and transmitting established bodies of knowledge, this approach is above all motivated by the view that 'the future' will be so different as to render much of the inherited culture redundant. What is missing here of course, as in the parent field, is an appreciation of sources of cultural continuity.[27] It follows that inherent in such a view is an emphasis on cultural critique, much of which is derived from the concerns of the wider futures field. The connection is made explicitly by Glines who writes that "schools must change in the light of four global factors: the communications revolution; multilateral world problems (...hunger ... multinationals ... population and resources issues); the biological revolution and outmoded ethics".[28] Evidently, it is a working familiarity with issues of this kind that lends the 'study of the future' much of its urgency.

It may be concluded from the above that American futures educators draw upon (and perhaps exaggerate) reconstructionist ideologies of education, but without appreciating some of the problems this entails. (See below.) According to Shane, "to accept the idea of a future-oriented education is to enter the ranks of those who believe that education must be an agent of cultural change".[29] Some go as far as to suggest that "education provides the most powerful tool man possesses for bringing about cultural change".[30] This rather naive optimism contrasts vividly with the pessimism expressed by other writers. For example, Bowman (et al) write that

> all futurists are concerned with the rapid rate of change and the problem of understanding the massive forces that are altering the human life-space. Most believe that the existing educational system, formal and informal, is inadequate to stave off disaster.[31]

Hence there appears to be a powerful, even contradictory, tension between futurists' attempts to enter into, and help transform, existing educational structures and processes,

and the view that these are largely ineffective anyway. This tension, however, may be modified by the realisation that futurists tend to look beyond the existing rigidities of conventional schooling. This question is taken up again below.

Other writers adopt a more considered approach. They emphasise the need for selection from the past, view 'the future' in terms of the "challenges" it implies and write of the present as "a time of transitiion".[32] This is much closer to the position defined above which sees mediation and negotiation as central futures concerns. Yet it is fair to say that these concepts have not been well developed in the American literature generally.

A further theme in American futures education is that of "complexity". "It is not", writes Kauffman, "just the pace of change, but the increasingly interconnected nature of our society and the entire planet that makes it so hard to cope".[33] He adds, "each action, social innovation, or technological invention has potential impacts on many different parts of society and .... areas of the globe".[34] Such statements reveal the sense of urgent concern felt by many futurists, but also the difficulty of coming to grips with ramified global problems. An oft-reprinted paper by Platt speaks of the "crisis of crises", referring to the inter-locking build-up of such problems.[35] The Club of Rome has coined the term "Global Problematique" to describe this.[36] Clearly, futures education reflects and embodies a concern that the global dimensions of futures problems are adequately represented in school curricula. However, approaches to the construction of such curricula are so varied that any evaluation of their content or effectiveness awaits further research.[37]

Wooddell emphasises future uncertainty and puts forward the view that "certain traits or characteristics, including cognitive skills, are most suitable for uncertain conditions". These include flexibility, creativity, the need to integrate information, and holism.[38] He argues for "a new conception of the student" which encourages initiative and self development, a supportive environment in which "the student can make mistakes and learn from (them)", "flexibility of structure" to facilitate the individualisation of learning programs and a community-oriented, forward-looking perspective.[39] Similarly, Kauffman is interested in selecting and defining curriculum elements "which will be valuable preparation for the greatest number of different possible future worlds".[40] He sets out six basic learning objectives for a future-oriented curriculum. These are: "access to information; thinking clearly; communicating effectively; understanding man's environment; understanding man and society; and personal competence".[41] These are further sub-divided into 63 sub-headings which range widely over many types of skills and areas of knowledge. Clearly the aim is to move away from the familiar, subject-dominated curriculum, but Kauffman is vague about principles of selection and it is difficult to see how such a broad program could be implemented in existing schools. Other writers put forward different lists which suffer from similar difficulties.[42] But some programs are more clearly structured around specific themes. These include the "clarification" of values,[43] the acquisition of "problem-solving and decision-making skills"[44] and the development of human potential. The latter deserves special comment.

In the United States a growing body of literature documents the convergence between research into creativity, mind-body interactions, the expansion and control of consciousness and futures education. This convergence has occurred in part out of a dissatisfaction with inherited conceptions of human capacities, in part as a consequence of recent discoveries, but most importantly perhaps as a result of changing perceptions about the threats and opportunities that lie ahead. Jean Houston is a leading proponent of the human potentials approach. She argues that "most of our questions and answers in the school room are addressed to one very small section of the brain, and arise out of one very small section of the planet, northern Europe".[45] She continues,

> it is enormously significant that the current crisis in consciousness, the loss of a sense of reality felt by so many, the destruction and disillusionment with education, and the rising tides of alienation occur concomitantly with the ecological destruction of the planet by technological means ....(Yet) at a time when we are experiencing a loss of hope in the social domain, the vision of what human beings can be has never been more remarkable...The new explorations and current advances in brain, mind, and body research are increasingly allowing us to view and probe the capacities of human beings and gradually to learn how to use these capacities much more productively.[46]

Clearly, a conscious attempt is being made here to alter the 'conception of personhood' which may inform curriculum planning. It is too soon to gauge how influential these ideas will be, but there is evidence that some futurists have integrated them into their educational proposals. The work of Torrance, originator of the Future Problem Solving Program, suggests that this convergence of ideas, insights and research has considerable potential.[47]

Ferguson takes the argument a stage further. She links an optimistic view of human potentials with an analysis of the breakdown of industrial ways of life and an ambitious synthesis of recent developments in several fields of enquiry. In her view the breakdown presages the emergence of a new order (or at least the possibility of this). It is a view which

> sees humankind embedded in nature. It promotes the autonomous individual in a decentralised society. It sees us as stewards of all our resources, inner and outer. It says that we are not victims, not pawns, not limited by conditions or conditioning. Heirs to evolutionary riches, we are capable of imagination, invention and experiences we have only glimpsed.[48]

As educational theory this is insubstantial fare, but it expresses many of the ideas now current in American educational futurism. The view that we have reached an evolutionary "break point", that we now have the means and the opportunity to "come of age" and to tackle the large and threatening problems facing us, - all this imparts a measure of order and security in the midst of otherwise perplexing changes. On one level it may be regarded as an ideology which is bound up with the world view of its adherents. On another it is contemporary myth, involving projective images of a desired possible future.

In both respects it appears to have strong support among educational futurists, such that much of the corpus of contemporary educational theory is relegated to a subsidiary or secondary position. Indeed, in the case of the Montclair Futures School, (discussed below), Ferguson's "Aquarian Conspiracy" was cited as a "very good summary" or their overall view.[49] The implications of this are several.

In the first place, this 'displacement of educational theory' suggests that the practice of futures education is more advanced than accounts that have so far been written to understand and explain it. This creates many difficulties for researchers in the field who have no well-articulated body of theory to draw upon. It suggests that a great deal of work remains to be done if a credible synthesis is to be achieved between the concerns of educational futures work and the theories underlying more traditional approaches.[50] Again, it is clear that futures education, as it has developed in the United States, is unlikely to flourish in other cultural contexts where the myths, images, beliefs and understandings which have been referred to above either do not exist or carry little weight. Thus, in other countries, the meaning of futures education, the rationales advanced to support it, patterns of development and content are likely to differ from the American model. This remains suggestive, but caution should be exercised in any attempt to copy it or to generalise too readily from its success. Furthermore, as noted briefly above, there remain significant deficiencies that require attention. (See below.)

The goals of futures education programs are many and varied. But most reflect the concerns of the parent field (as set out in 3.1.3). That is, they stress the concept of alternative futures, the need for conscious choice, informed participation and purposive action. They aim to prepare pupils for a world of rapid change, to encourage the acquisition of appropriate skills and competencies, but most of all perhaps to encourage the 'habit of anticipation'. Stock gives a list of 19 such goals which elaborate these concerns.[51] However, de-contextualised lists of this kind tell us very little about what actually happens inside schools. To obtain a better grasp on this it is helpful to look briefly at the organisation and content of futures study programs, then look in a little more detail at one outstanding example.

The nature and content of futures courses in American schools varies widely, but surveys suggest that most are taught as separate courses which are voluntarily attended and most commonly associated with social studies and English departments.[52] This appears to be widely regarded as a "first step". According to Fletcher, "most futurists involved with education agree that futures study should be infused throughout the entire curriculum of a school".[53] He quotes Strudler, who writes,

> it is important to recognise that specialised courses in the future are only a stopgap. The future of education itself will be best served if the burgeoning interest in tomorrow is not .....channelled into a separate discipline, but instead is made pervasive throughout the entire curriculum. By this I do not mean that each subject taught should contain a module on futurism. I mean that the entire course should reflect concern with broadening, expanding, and future-orienting the time horizons of students.[54]

Clearly this is a more difficult proposition. It requires good organisation, administrative support, appropriate materials and resources. But the most important factor may be teacher commitment. As Fitch and Svengalis comment, "successful infusion of futuristic ideas and concepts depends upon the teacher's abilities, perceptions and familiarity with the futures perspective".[55] As will be seen below, it would appear that the latter is more easily acquired in America than in Britain.

Many courses have an identifiable emphasis which seems to be related both to teacher interest and to the age group of the pupils. For example, at the elementary level imaginative and life-skills approaches appear to be common.[56] High school programs tend to be more sophisticated technically, to examine issues in greater depth and to embody a concern for the development of human potentials.[57] The more experienced futurists often organise their courses around some of the concepts, theories and techniques of the futures field itself.[58] This, in turn, blends into the more sophisticated "futuring" approaches adopted at university level which involve the extensive use of futures research methodologies, including some associated with computers.[59] Speculative literature is widely regarded as an important resource at all levels.[60] It complements more formal approaches as well as drama, gaming and simulation studies.[61.] By dramatising possible outcomes, it contributes to exercises in decision-making and the "clarification" of values.[62]

Stock's study of 184 futures courses gives a further insight into the type of topics studied. Those listed under "very high degree of inclusion" (ie over 80% of courses sampled) were as follows:

Alternative Futures
Population
Ecology and Environment
Communication
Family, Marriage and Sex
Energy
Society and Culture
Education and Learning
Biomedical Developments and Behavioural Research
Housing and Settlements
Natural Resources
Work and Leisure
Science Fiction

The topics which had a "high degree of inclusion" (ie those in 60-80% of courses sampled) were:

Images of Man
Transportation
Nature of Change

Government and Politics
Production and Consumption
Futurists and Future Studies
International Relations
Food
Values Clarification
Space[63]

The most notable result of this survey was to show that 'future studies' covered a broad range of foci, few of which fell distinctively within a futures perspective. Most could be considered parts of other subjects. However, this eclecticism is not necessarily a weakness. It indicates that 'the study of the future' is a broadly based, synthesising enterprise. As such, it is perhaps less a subject than a meta-subject, less a perspective than a meta-perspective. Its 'openness' certainly gives it problems of definition, but at the same time, it allows ideas and influences to be 'brought into relation' that might otherwise be separated by subject boundaries. Similarly, by permitting and encouraging the development of broad overviews, it counters the often regretted trend toward specialisation and 'trained narrowness'. Finally, it should be noted that to approach a topic from a future perspective is, at the very least, to question whether accepted understandings are adequate and if they are not, to consider how they might be revised.

As noted above, much is claimed for future education. Yet the evaluation of futures programs remains at largely undeveloped art. Stock regards it as one of the major weaknesses of the field, and there are certainly few formal studies to draw upon. Neither is it clear what criteria should be applied since objectives vary and futures problems are both open-ended and value-laden. It may be that progress in evaluation awaits the development of more coherent curriculum structuring principles.[64] Fletcher , and Fitch and Svengalis, however, have each made a case for non-competitive, largely qualitative approaches to evaluation which appear promising.[65] Other evidence is largely anecdotal. There are indications that students respond positively to future courses, and "cross-over" effects have been observed whereby exposure to 'futures' appears to be associated with greater competence in other curriculum areas.[66] A survey carried out by Peakes in 1979 showed that "of 23 curriculum areas, 'the future' came out ahead"(ie was most popular).[64] Again, following the introduction of an inter-disciplinary futures course at a Liberal Arts College, the staff found that "a sense of experimentation, a richness of energies and fresh attitudes strengthened the faculty. Previously unused talents flourished and cooperation rippled into other academic areas".[68] Numerous other examples could be given and it is useful to examine one of these: the Montclair Futures School, New Jersey.

Extracts from the Grove Street Futures School prospectus describe an elementary school which has been organised explicitly around futures themes. While it may be argued that elementary schools face different constraints compared with secondary schools, this example is instructive in part because it demonstrates the viability of futures approaches with younger children. Furthermore, the manner in which futures concerns are (or are not) handled at this level is one of a number of factors which help to determine what may be attempted in this area at the secondary level.[69]

The major objective at Monclair is "to enable the students to see that the future is understandable and can be shaped". To this end the usual 'basics' are related to "global issues, problem and opportunities", the use of information technologies and the acquisition of learning skills and personal competencies (eg "relating, deciding, tolerance for ambiguity"). (NB All unreferenced quotations are from the Montclair prospectus.) All pupils attend the school by parental choice, and the school day is divided into teacher-led and pupil-led sessions. Children are flexibly grouped according to grade, skill or interests. Two crucial factors in the success of the school were the generous resources made available and the active interest of teachers and parents.

Apart from usual resources associated with elementary schools, the Grove Street Future School is equipped with "hand-held calculators, computers, video equipment and television". These have helped in the establishment of four separate activity centres: the Global Ecology Centre, the Technology Centre, and "Imaging Studio" and the Little Theatre of the Future. These provide "interactive learning environments" in which pupils are encouraged to "discover their own strengths, to enhance their potential as problem-solvers; and to retrieve information via the computer". The success of these arrangements was apparent in the interest and enthusiasm they generated. But it was also demonstrated by a dramatic improvement in pupil performance as measured by Minimum Standards Test. Before the futures program was established only about 50% passed, whereas later this rose to a full 100%.[70] This, in turn, helped to secure parental support (since parents were concerned that 'basic standards' should not be adversely affected by the program).

The origins of the Futures School are also of considerable interest. In a talk on the subject, the school district administrator, Mr Peakes, described how it had been set up on the initiative of his office and with teachers who had "no prior training in future studies".[71] As noted in the prospectus, "teachers began their study during a month-long summer in-service (course)". According to Mr. Peakes, they became visibly "energised by futures approach, (and) this helped to achieve the high test scores".[72] The close involvement of the teachers in designing the curriculum was instrumental in securing the commitment necessary for such a new venture. Of equal importance to the present study is that several years experience with the Futures School has shown that it only takes "four to six weeks to train new teachers in this approach".[73] This means that the knowledge and skills required for 'teaching futures' may, when circumstances permit, be speedily and economically acquired. While over-easy generalisations must be resisted, the Montclair example bears strongly on the conclusions and will be discussed further below.

Thus on the practical level, futures education has made impressive progress in the United States. But it would be unrealistic to expect such rapid growth in other countries. One reason for this is that, from the perspective adopted above, futures education suffers from some of the shortcomings we detected in its parent field. Some of these are evident in a list of ten generalisations about the "nature and potential of futures education" in the United States, offered by Fitch and Svengalis. In their view it:

- encompasses a range of subject matter from many disciplines....

- attempts to persuade students to think more systematically about the future;
- is heavily weighted toward the use of enquiry strategies and problem-solving techniques;
- is open-ended (implying a crucial, facilitative role for the teacher);
- promotes the development of insight and perspective into the major issues of today, the outcomes which will promote the future;
- often contains a strong value component;
- is characterised by a high degree of optimism;
- distinguishes between possible, probable and preferable futures;
- encourages individuals to take initiative in managing the future, rather than allowing events to take them by surprise;
- is not dominated by any particular topic or issue.[74]

The interest in a list of this kind lies not so much in what it contains as in what it leaves out. There is, for example, no mention of the crucial processes of mediation between 'past, present and future' which underly any defensible conception of future study. Again, there is an implicit commitment to 'change' and a characteristic lack of concern for cultural continuity. This detracts from any attempt to "manage the future" since this must spring, in large part, from existing cultural resources and understandings. Elise Boulding's notion of a "two hundred year present" is valuable precisely because it makes this point with such clarity. Thus, while some futurists have seen their work as part of a wider, historically rooted project, educational futurists have yet to recognise this and work its curriculum implications. These criticisms reflect a wider difficulty.

As long ago as 1970, Eldredge commented on the relatively shallow intellectual roots of the futures courses he had surveyed. It is notable that over a decade later there still remains evidence that this judgement is valid. This is undoubtedly one reason why futures education has not prospered in Britain: as they stand, its theoretical foundations remain underdeveloped and incapable of bearing the weight of exaggerated claims.[75] As noted at the beginning of this work, educational theories are based on various assumptions.[76,77] Yet it appears that no systematic attempts have been made to interrelate these bodies of theory in a rigorous and defensible manner.

The most systematic treatment of American futures education to date is probably that produced by Woodell (1979a). This provides an invaluable review of the development and characteristics of the field, but it is descriptive rather than analytic, and lacks a critical purchase on major issues and problems underlying this area. Dede's paper "The State of the Union in Education Theory" is remarkable for its lack of explicit attention to educational theory.[78] Similarly, the attempt by Pulliham to work "Toward a Futuristic Theory of Education", while making some perceptive points, settles for some "basic concepts" that are little more that aphorisms.[79] Again, the attempts by Bowman (et al)[80] to define a broadly reconstructionist approach to futures education fail to achieve credibility either in relation to the problematics of reconstructionism as an educational ideology,[81] or to the uncertain and open-ended nature of future problems.[82]

There are other omissions in the futures education literature. There appear to be few in-depth attempts to grapple with problems of ideology, culture, communication, rationality and fundamental human interests. Hence the possibility that links may exist between the rise of futures education (and indeed, futures study itself) and the desire of all privileged groups to maintain their status, position and material wealth appear to have been overlooked. While the sincerity and integrity of educational futurists is not in doubt, it should not be forgotten that modern futures research springs partly from military and strategic preparations for the defence of American interests. The extent to which this remains a 'submerged theme' in American futures work across the board remains an open question. But it is a question that requires critical attention.

It may be concluded that futures education in the United States in the late 1970s and early 1980s is a distinctive combination of practical achievement and theoretical inadequacy. Yet, as we noted in connection with the wider futures field, to recognise the deficiencies of a field is not to condemn it out of hand. Rather, it is a necessary prelude to the selective utilisation of what seems to be of value. Thus there is much to learn from American experience, but any attempt to merely duplicate it would be foolish.

4.1.2 Treatment of the Future in England and Wales

In contrast to the United States, what is perhaps most significant about the treatment of 'the future' in this country is that it has received so little attention from educationalists. Over the last decade less than twenty significant publications have appeared, and of these several have been associated with radio and television programs. A few appeared as short papers in educational journals. Only about ten books have been published and these vary widely in scope and quality. Clearly there has been no surge of interest in futures education to compare with that in the U.S.A.

Examination of curriculum surveys, teacher training programs, indexes of educational research and journals show that attempts to work out the curriculum implications of futures research or of futures-related problems have been extremely rare.[1] This lack of interest stands in contrast with a more general publishing boom in futures-related works and with the continued growth of grass-roots, issue-oriented, public interest groups. It would therefore be easy to conclude that 'the future' is a wholly 'missing dimension' in the secondary curriculum, and in some senses this is true. The pedagogical significance of futures approaches has yet to be understood or appreciated. On the other hand, a more generalised concern for 'the future' is evident in a spate of minor curriculum developments in futures-related areas. So the situation is less straightforward than it may first seem. Since, however, futures perspectives per se have not thrived in the British educational climate, there is little in the way of explicit theory or practice to survey or analyse. Thus to discover how 'the future' has been treated, it is necessary to turn to the small body of literature which has touched on this.

A list of British initiatives and publications relating to futures themes in education from 1970 to 1981 is given below. This is not exhaustive, but it is the result of extensive searches, and contains most of the significant works in this area over the period indicated.

For convenience, it is useful to divide these into three groups. Thus one may distinguish between mostly short, pupil orientated books and pamphlets (three of which were associated with radio and television broadcasts), and the more academic works directed toward a professional audience. In addition, there are two small-scale curriculum projects, both dating from 1977.

There are seven publications in the pupil-oriented category, and of these four are undistinguished compilations of short essays on themes such as "Daily Bread", "Tomorrow's Roof", "Good Health" and "Getting About".[2] Particularly disappointing is the booklet "Looking to the Future" from the Science and Society Project. While most of the essays are competently written, the overall product is dense and unimaginative. As Bulman commented in a review of the whole series of booklets, the articles tend to "follow a scientific of political'establishment line'. Different sides of an issue are not represented.... there is no whiff of the CND, Friends of the Earth, or BSSRS".[3] Despite (or possibly because of) the list of distinguished contributors, there is nothing in the booklet about the futures field per se, no hint of the concepts and techniques of futures education, no attempt to explore alternative scenarios to the real-life choices they pose. It may, however, have value if used in conjunction with other materials.

Radnor's "Living in the Future" is a wholly different proposition. It was produced in association with a short series of Thames Television programs for schools. It is a salutary example of how not to approach 'futures' and stumbles into many of the major pitfalls. Since it is explicitly produced and packaged for children (and schools) a detailed critique of the work is needed. But since this would take up disproportionate space in the present context, this discussion is restricted to the major points. These are, first, that like some of its predecessors[4] it is strongly technophilic, going to considerable lengths to demonstrate how, for example, microelectrics will "improve our lives", but failing to discuss possible costs, penalties, second and third order consequences.[5] The emphasis throughout is on the external construction of the future by technology, some implications of which have been discussed above. (Section 3.2.) Second, the book is naively optimistic in tone and presentation. It illustrates aspects of a high technology, energy-, and resource-intensive scenario for Western societies only. Thus, third, the book lays itself open to the change of ethnocentricity. 'The future' portrayed is fundamentally affluent, white and 'northern'. Fourth, and most seriously, the political and ideological dimensions of futures problems are wholly obscured by the bland, matter-of-fact treatment, such that assumptions are presented as 'natural' rather than revealed as negotiable and open to discussion. There is no attempt to introduce theories or major concepts from the futures field. In short, the book is biased, under-dimensioned and misleading, and may well act to reinforce taken-for-granted beliefs about the future that are now in some doubt.[6] Works of this type reinforce the view that the central concerns of the future fields are not well understood in Britain.

Table 4

British Initiatives and Publications Relating to Futures Education 1970-1981

1970 Calder, N. Living Tomorrow: planning for the future (Connexions: Penguin)
1970 BBC Radio for Schools, Prospect: 2,000AD What sort of world?

1971 Taylor, W. Alternative Futures in Education, B.J.Ed.Tech 2.5.1971
1971 Short, E. Education in a Changing World

1973 Skilbeck, M. The School and Cultural Development

1974 Cotterell, A. and Collins, N. (Eds) Futureprobe

1975 Lister, I. The School of the Future
1975 Cross, N. (et al) Man-Made Futures: Design and Technology, Open University

1977 Nicholson, S. Community Participation by Children in Futures Project
1977 Jeffery, J. (et al) Possible Futures, a one term course, Pocklington 6th form

1979 Thompson, A. Understanding Futurology: an introduction to futures study
1979 Coggin, P. Education for the Future: the case for radical change

1980 Pluckrose, H. and Wilby, P. (Eds) Education 2000
1980 Carter, C. Higher Education for the Future

1981 Simon, B. And Taylor, W. Education in the 80's: the central issues
1981 Radnor, A. Living in the Future (To accompany ITV schools series)
1981 Assoc. for Science Education Looking to the Future, Science & Society Project
1981 BBC TV booklet Today and Tomorrow (on micros., energy, transport, etc)

In complete contrast, Nigel Calder's 1970 booklet "Living Tomorrow", while produced a decade earlier, manages to avoid virtually all of these problems. It is attractively produced (using a variety of graphics and illustrations), balanced and deliberately understated. Yet it succeeds in bringing out the crucial nature of future choices and some key concepts of futures thinking (eg the differences between various types of forecasts).[7] At the beginning the author establishes the tone of the work very clearly. He writes, "I know nothing about the future – no facts".[8] Later, he continues, "the most important point to keep in mind when people like me talk about the future is that we may be quite wrong". Yet he also adds, "wrong forecasts need not do much harm if they make people think, but you have to keep doubting them".[9] Neither is the book merely another compendium of the usual issues: transport, cities, communication, space colonies. It also touched on questions of value, means and ends, and participation in decision-making. In short, it is a fine example of how futures study can be made accessible and intelligible to secondary age pupils. Unfortunately, however, it stands virtually alone in its imaginative grasp of the field.

The other two works in this category, Thompson's "Understanding Futurology" and Cotterell and Collins' "Futureprobe" are both inferior works. The former provides a very shallow and ill-informed sketch of the futures field which, while modestly written, contains glaring omissions and often descends into platitudes. It ranges idiosyncratically across a number of issues but omits to mention speculative literature, or explore the pedagogic implications of futures study. The author concludes that "there is a very real need for futures education in schools", but is clearly unaware of developments that have occurred in this area.[10] Futureprobe veers in an entirely different direction, forsaking the futures field per se for a confusing and ill-structured collection of poems, sf stories and short pieces on aspects of the future. While the book contains much of value, the authors lack the knowledge and insight to organise it coherently. This is unfortunate since, as noted above (chapter 3.2.1), speculative and imaginative literature has enormous potential in the field of future study. But instead of exploiting this potential by bringing out its varied possible uses and classroom applications (as, for example, Livingstone does),[11] the poems and stories are merely used to 'illustrate' aspects of the future in an almost random way. The relation of some of the stories (eg by Ballard and Bradbury) to other material seems obscure. It is clear from this and from the caveats in the introduction that the editors had no coherent framework by which to organise the book. Hence its value is severely diminished and may, at best, be regarded as another source of background material.

Of the nine works in the academically-oriented category, two are of marginal interest: Lister's "The School of the Future" and Carter's "Higher Education for the Future". The former is perhaps mis-titled, being a collection of rather conventional views about schools (with 'the future' as an undeveloped and unproblematic concept). The latter is a competent review of some of the difficulties facing the higher education sector and of positive directions in which it might attempt to develop. But it falls outside of the scope of this study and thus requires only very brief comment. It is significant that, with the exception of microelectrics, Carter does not attempt to relate his chosen subject to change

processes in the wider world (as outlined in section two). Neither does he develop the concept of the 'future'. It seems characteristic of the great majority of British writers in the educational field that 'the future' is taken 'at face value' as a taken-for-granted and linear extension of the present.

Of the seven remaining works in this group five are books, and it is convenient to deal with these in chronological order. Short's "Education in a Changing World" (1971), has much to recommend it. Some passages clearly echo themes that futurists have made central concerns: "society has probably changed more in the past three decades than it did in the previous three centuries", writes Short (p.9). Furthermore, education lags unacceptably behind these processes. It "often is quite unaware of the fundamental nature of the change which is transforming the satisfaction of our material wants and continues to prepare young people for a world which is disappearing". (p.15) In his view, "the educated person of tomorrow must be able to control the rapid change which technology will bring. Man must be dominant, not the electrical circuit in the machine...." (p.18.) There are also hints as to how 'education' should respond. Teachers must remain aware of the "wider aspects" of their work and "from time to time (take) a long, cool look at the society which employs them". (p.23 & 148) The writer is clear that "formal education cannot fundamentally change a free society....(but) it can and should try to influence trends in it". (p.148) He calls for "a new orientation of education philosophy (and) an electronic age....emphasis on individual creativity (which) cannot be achieved in the traditional teaching situation. (p.131 &30)

One cannot but admire Short's percipience and yet, at the same time, regret his lack of success in approaching, or grappling with, the underlying issues. The book is an eloquent expression of concern, a plea for education to respond actively to the 'Brave New World' ushered in by the proliferation of powerful new technologies. But in the end it remains ineffectual. The writer is clearly a man of integrity but he is unable to visualise the educational responses required in concrete terms or to frame a rationale for their implementation. Again, there is no indication that the author is aware of futures perspectives or their implications for education.

The volume edited by Cross, "Man-Made Futures" (1975), is quite different in conception and approach. It contains "thirty-eight extracts of articles from recent books or journals dealing with the relationship between technology and society, and in particular with the functions of design in that relationship". (Quoted from the cover). For the most part, the contents are of a high quality as befits a set book for an open University course (T262, Man-Made Futures: Design and Technology). Despite its 'design' orientation, fully one third of the book contains papers concerned with "Policy and Participation", which may be considered two crucial areas of concern in an educational context. It is true that the book was intended for use by O.U students, but it, and some of the associated course units, contains material which is suitable for upper secondary and teacher education applications. The "classification of visions of the future" and the "alternative futures matrix" in unit one are particularly clear and useful. Again, the treatment of social and technical change in units two and three usefully explores issues that are poorly conceptualised by many educational writers. Taken overall, these

publications represent the most useful and sophisticated, specifically educational materials yet published in this country, and hence they deserve wide consideration and use. Yet the Man-made Futures course was replaced in 1983 by one entitled Design: Processes and Products, so the continued existence of specifically future-oriented components is doubtful. (See S.T.S.A. Newsletter, Issue 13, June 1982, p.14)

Coggin's "Education for the Future" the case for radical change" (1979), is a perplexing and idiosyncratic work distinguished by penetrating insights ("Newtonian physics....set a pattern for life in general and learning in particular from which the modern world is still suffering" (p.25), and contentious assertions ("Technology is about the solving of problems and enables the individual to become the master of his destiny and the maker of his society" (p.170). It is curious too in that it purports to be about 'the future' yet draws disproportionately upon classical and historical sources and all but ignores the available futures literature. It appears to be an attempt to articulate 'futures' concerns out of a classical world view. As such it fails conspicuously to achieve a credible balance between inherited traditions and future prospects. Indeed, one of the most notable features of the book is that while it conveys a strong sense of the past, of the weight and continuity of tradition, it again has no properly articulated concept of future. It therefore lacks coherence and tends to wander superficially among a number of issues. As a contribution to creating a "case for radical change", the book, is finally unsuccessful, deteriorating into proposals that are neither radical nor original (eg more group work and "choice", especially via "community resources" (p.173-4). As implied above, it is naive about the role of technology in shaping (or threatening) human existence, and betrays little insight into the debates that focus upon this. It is therefore difficult to avoid the conclusion that this is simply another well-intentioned work that fails to engage with its subject. This is particularly regrettable in the present case because, as noted above, the very foundation of futures study is profoundly interrelated with an appreciation of historicity.[12] Evidently, the majority of educational writers appear to fall one side or the other of this great (and artificial) divide.

Pluckrose and Wilby's "Education 2,000" (1980) was also conceived and written out of traditions rooted in 'the past', and it too suffers from very similar defects. In their introduction the editors try to make their positions clear. In their view,

> the future of education will be determined by the future of our society, and social prophecy is too perilous an exercise for any of us to dare to forecast, even tentatively, what our society and our world will be like in the year 2,000. To that extent, this book has been written blindfold....there are no blueprints...no visions.[13]

Yet a few pages later they also write,

> change is always uncomfortable but we owe it to our children to abandon our preconceived notions, to get off our professional hobby-horses and to throw away our ideological prejudices. It is for their sake that we should look forward, not backwards.[14] (Emphasis in original.)

Clearly there is some confusion here. Leaving aside the question of how one might "throw away.....ideological prejudices" (as opposed to critically 'harnessing' them – see 3.2.2), the editors' belief in the need to "look forward" is in conflict with their rejection – or lack of awareness – of the means of so going. To regard "social prophecy" (ie prediction), as "perilous" is entirely reasonable. But to collapse the very broad spectrum of futures-related tools, techniques and capacities into this one, limited, category is wholly unreasonable. It is to reject the very building blocks of a future-oriented pedagogy.[15]

Pluckrose and Wilby make the common error of assuming that because 'the future' is inherently uncertain it is entirely beyond our grasp. Thus they are constrained to write "blindfold", to have "no visions". They have failed to realise that futures potentials are accessible to imaginative exploration and that it is the existence of uncertainty that makes the future worthy of serious study. The earnestness of the editors and contributions to this book is evident. But, in view of its subjects, it remains intellectually parochial. It is informed neither by existing bodies of futures-related theory and practice nor by the suggestive interpretations of our contemporary 'crisis' offered by futurists and others.[16]

Fortunately another book edited by Simon and Taylor – "Education in the 80's: the central issues" (1981) – avoids many of these pitfalls and begins to engage creditably with some key issues. Taylor makes it clear that the contraction of the system is a political matter and not simply a "rationalisation" in response to "falling demand". There is an excellent paper by Entwhistle which explores some of the emerging contradictions and tensions vis-a-vis 'work and 'leisure', and implies that radically new educational responses are required. The twelve other contributions, on the whole, maintain this high standard. Simon even quotes Vigotski (with evident approval) to the effect that "pedagogy ... must be oriented not toward the yesterday of development but toward its tomorrow". (p.142) This is therefore an important, transitional, book. While it does not attempt to develop a fully articulated futures perspective, it does look ahead to the rest of the decade in a spirit of critical enquiry. It shows that English educational writing can break out of its traditionally restricted mould and begin to relate educational theory to wider, forward-looking concerns. This is clearly a positive step, but to see it exemplified it is necessary to go back a decade to two short papers written in the early 1970's.

The first is Taylor's "Alternative Futures in Education" (1971). This views alternative futures as "an approach to medium- and long-term planning"[17] rather than as an approach to pedagogy as such. But it is informed by an uncommon awareness of futures research techniques and of rationales for their utilisation. Taylor writes,

> in a slowly-moving world the horizon was always a long way off, and it mattered little if our vision was restricted to a few yards ahead. In a world such as our own when the horizons ....seem to come towards us with increasing speed, we can no longer be satisfied with such restricted vision. What is today just over the horizon is tomorrow's reality; contingent as our world may be, we must try to find the vantage points that give us a longer view.[18]

At the end of the paper, after a discussion of research techniques and national assessment procedures, the writer concludes that:

> trend extrapolation, Delphi techniques, national educational assessment, the right kinds of fundamental research – all these matter. But what matters most are the kinds of ideas and imagination that spring from a conviction that there is no need to simply wait for things to happen to us, but that, given the appropriate organisation of knowledge, and the willingness to recognise and build upon our strengths, the future is ours to make.[19]

While begging the question of what might be meant by "appropriate" in this context, the passage embodies a bold claim – one common enough in the futures literature, but rare in British education. Neither is this merely rhetoric: Taylor clearly understands that we have a powerful interest in the unfolding of futurity and a shaping influence over it. Yet, sadly, he shies away from the implications of this position, leaving us only with tentative questions as to whether or not we are "presently involved in a cultural revolution" and if it is "the duty of teachers ..... to work with the grain (of change) ..... or exercise countervailing force to oppose (them)".[20]

The writer has seen the need of futures perspectives in education, but he has only seen it clearly in relation to administration and planning which is arguably the least productive area in which to apply futures thinking. Futures research may inform planning, but since it cannot predict the future, planning will necessarily remain an uncertain art. Yet, it will be suggested below that futures perspectives can radically alter curriculum design. This may be informed by the full range of 'tools' available within the futures field, by a developed sense of future changes and by active responses to uncertainty.[21] In other words, the pedagogic implications of alternative futures are much more far-reaching than the administrative and organisational implications.[22]

The other paper to which reference must be made is Skilbeck's "The School and Cultural Development" (1973). While written from an educational reconstructionist, rather than a futurist, position, this essay comes the closest of any examined above to setting out a rationale for future-oriented curricula. Skilbeck distinguishes four strategies that schools may adopt in relation to cultural change. Firstly, they may "swim with the tide by identifying basic trends and going with them rather than resisting them"" Secondly, they may "identify particular elements in the past, and seek to preserve them". Thirdly, they may "carry on their work largely ignorant of or indifferent to what is happening in other key sectors of the culture". Lastly, "schools may look forward, trying to anticipate situations in the future, assessing them for their educational significance, and influencing them through the various limited means at their disposal".[23]

We should note in passing that these strategies are not necessarily mutually exclusive. For example, a conscious attempt to mediate between 'past' and 'future' might involve a combination of the first and the fourth. But the major thrust of the argument is sound. The first strategy "only makes educational sense if some educationalists are assessing and helping to direct the movements of the tide", writes Skilbeck. It is a point which will be

taken up below via the concept of 'environmental scanning'.[24] The second has a number of drawbacks including that it "very easily lapses into intransigence in the face of possibilities different from those which have formed the experience of the conservers". The third "is little more than a policy of inward-looking drift" and as such it is "no educational policy at all". (p.30-31) The writer discusses some of the implications of the fourth strategy: the burdens it places on the teacher and the inescapable need for proper in-service training and support; the difficulty in the (then) present context of analysing and projecting trends; the Popperian objection to social "prediction"; and the desirability of viewing the traditional disciplines more as a resource than as a major determinant of the curriculum. He concludes that it is unsurprising that schools have proved relatively ineffective in changing attitudes or exerting greater influence when, in fact, most have not tried to do so. More importantly, he writes,

> the study and appraisal of contemporary culture, its principle modes and manifestations, its tendencies and possibilities, is a more appropriate curriculum target for schools which wish to prepare children for future living than the snippets and fragments, mostly of a second-hand factual type, which still commonly feature in secondary education.[25]

Here is a concise expression of the need for schools to 'locate' themselves in the wider spatial/temporal/cultural context. It echoes the futurist concern to look beyond immediate phenomena and to encourage the development of broader, long-term perspectives. As Taylor noted, following Jouvenel, rapid change makes foresight, prevision, anticipation increasingly necessary.

Yet the remarkable thing about these ideas is not simply that they have fallen upon stony ground, but that for a variety of reasons, there appears to have been a foreshortening of vision, a drawing back from the wider world, a tendency to focus on the close-up, the immediate and the traditional. This is not, as will be seen below, to suggest that there have been no attempts made to reverse these processes. Rather, they have failed to prosper in the cold climate of British Education. Before attempting to account for this however, this study looks briefly at two small-scale curriculum initiatives that took place in England in 1977.

It is significant that the impetus for Nicholson's "Children in Future Project" seem to have come from his attendance at two overseas conferences (Vancouver and Dubrovnik), and a paper describing it was delivered at another in Cairo. The project was located at schools in Napoli (Italy) and Oxford, with the support of the World Studies Federation (WFSF), and the Open University, where Nicholson was based. It attempted to make various media available to children in order that they can begin to escape from the domination of adult-controlled media and exercise what Nicholson regards as their innate "holistic understanding of the nature of spacetime...." In his view, "this understanding can be shared by all, rather than physicists and mystics alone".[26] (A reference, perhaps, to Capra's "Tao of Physics", 1975.)

According to Nicholson, “children are on the end of a communication whiplash (which).....makes (their) futures vanish”. Furthermore, “the domination of media by adults has the effect of conditioning children to believe in a future which is based on the past and to believe that any changes...can only be initiated by chance or by experts”.[27] The project therefore attempted to explore some of the ways that children could utilise media to articulate their own views of possible futures and by so doing to develop their creative, future-shaping potential. But Nicholson took the view that “future studies” were unlikely to thrive in existing schools in part because of their uncritical acceptance of the dominant, material world-view, and in part because “timetabling the future surely will not work”. Sadly, however, the writer is vague about the conditions they might thrive in, and the paper lacks an attempt to evaluate the results of the project. It remains idiosyncratic and imprecise, ending with a plea for pluralism and an expression of hope that “future solutions will come from children as well as from other people"”[28] While the paper and the project itself appear to contain generative ideas, it is regrettable that they are not expressed or communicated clearly.

Finally there is the “Possible Futures” course at Pocklington school in Yorkshire. This began in 1976 and was, perhaps, the first of its kind in the country. Designed as part of a sixth-form general studies course, its principle purpose has been described as “to encourage our sixth-formers to think constructively about the future of our society and to see how they might be able to influence it when....they will be a position to do so[29] Interestingly enough, one factor in the creation of this course was that one of its initiators had been impressed with some of the arguments in “Future Shock”.[30] However, “Possible Futures” was not structured around this theme. Instead it used a variety of materials and visiting speakers to introduce the students to contrasting views of ‘the future’. Some central concepts which emerged were that “choices.....and viable alternatives do already exist”; these “will affect the direction in which society develops’; and students’ preferences were “tied up with....views on the nature of man”.[31] The course was taught by an interdisciplinary team of four persons, and was evidently well-received by the pupils, one of whom commented that “I feel this course has not only been worthwhile, but an education”.[32] (Emphasis in original.) Unfortunately information about other courses of this kind is not readily available, so it is impossible at this point to determine the extent of other ‘grass roots’ innovations in futures study.[33]

What then may be concluded about the treatment of ‘the future’ in England and Wales? The first, and most obvious conclusion, is that few have perceived it to be a significant issue. While many of the central ideas of the futures field have been aired, they have not, on the whole, been taken up and developed. This contrasts dramatically with experience overseas where programs and publications relating specifically to futures study ran into the thousands.[34] In this country, and over more than a decade, we have a mere handful. Second, of these only a small minority demonstrate an understanding of future-related issues or the futures field. As far as can be determined, most have no properly articulated concept of ‘the future’, this being widely understood as developing unproblematically and linearly from ‘the present’. Third, while there is evidence of attempts to introduce futures-related content into secondary curricula (see below), there is no evidence of systematic attempts to bring futures perspectives to bear on the theory or practice of

teaching or on the problems of curriculum renewal. This is startling when it is realised that pupils now in school may reasonably expect to live to the middle of the 21st century and even beyond.[35] They are undoubtedly the inheritors of the most dynamic, volitile and ecologically demanding civilisation yet seen upon the earth, and the difficulties they face are correspondingly great.[36] Yet schools, and much of the theory underlying curriculum provision, do not reflect this. Caught in the contradictory stresses of the present, the focus of competing and often irreconcilable demands, the energies of schools and teachers appear to be absorbed in 'system maintenance', rather than in adaptation and change. The reasons for this are complex, but among them is a deep-seated failure within the English educational system to achieve a credible balance between strongly-felt imperatives arising from the past, and the demands of uncertain and dimly-perceived futures. It is now appropriate to try to account for this imbalance.

It is not possible, in the present context, to do more than outline some of the factors involved in creating and maintaining the 'temporal assymetry' of school curricula. But three areas suggest themselves as worthy of future enquiry. These are first, background historical factors; second, factors arising from the nature of the futures field and the problems it is concerned with; and third, specifically educational factors.

There can be little doubt that British culture is deeply embedded in the past. Such national identity as Britain possesses arises from a shared language, historical experience and geographical association with a specific territory and climate. The British landscape is a product of interactions between natural and historical forces. It has been shaped by and in the past. It is littered with the remnants of history: castles, manor houses, earthen dykes and stone circles. Major routeways and the street pattern of many settlements date back to the time of the Romans or even earlier. This nation cannot escape the past, even should it wish to, since the past surrounds it on every side. Again, many of the major institutions: the church, the judiciary, the monarchy, the armed forces, and more recently, the schools are rooted in the past and receive much of their social legitimation from the force of tradition (cf Williams, 1961). The class structure is an historical – some would say dominating – fact of social existence. In short, 'the past' is tangible and invested with great authority and significance, whereas 'the future' seems uncertain, distant, even threatening. The extent to which this conditions 'British' psychology remains an open question. But if media coverage is any guide, the preponderance of historical costume dramas and documentaries over serious attempts to explore future-related themes indicates a preference for representations of 'the past' and the (largely spurious) sense of security that these offer.[37]

Within this context it is unsurprising that academic traditions tend to be conservative, preferring that which has been validated by past usage to that which is new or 'speculative'. In some respects this is useful and necessary. But, as many have come to realise, new conditions demand new responses – many of which may be fashioned from past models, but not in direct imitation of them. Thus the challenge for educationalists is to bring the inherited understandings of tradition into a controlled and defined relationship with the emergent interpretations of a critical futures view. This point is taken up further below.

Other cultural/historical factors involved in maintaining existing temporal biases include: the expenditure of post-war energies on re-construction; the declining competitiveness of British industry; the secondary strategic position of the U.K. (and relatively minor expenditure on defence-related research); lack of entrepreneurial drive and, more recently, static or declining standards of living. It should, however, be emphasised that this question is under-researched and awaits further enquiry.[38]

A second set of factors arises from the uncertain status of the futures field in this country, which, as we have noted above, has not developed as rapidly in Britain as elsewhere. Hence the field has 'low visibility' and is not wide known outside of a small number of university-based research groups and government departments. While, as noted, there is a wide range of public interest and pressure group activities in futures-related areas, the cross-cutting networks that result are so diverse as to defy easy classification. Problems of visibility and definition are further compounded by normative and epistemological problems, some of which were examined above (section 3.1.). To recap as briefly as possible, various substantive issues (eg relating to ideology, the nature and control of change processes, technological imperatives, the search for 'objectivity', the nature of the assumptions underlying futures work) have yet to be well articulated or resolved. Parallels with the study of history are not widely appreciated, and much of the American literature lacks critical power. Again, futurists are prone to under-estimate the imaginative investments required to endow 'the future' with significance. Neither have they made full use of the symbolic and imaginative resources of speculative fiction. Thus to 'study the future' is to draw on a set of understandings (which are, themselves, in process of transformation and change) that are not widely shared or, in some of their present forms, readily accessible.[39]

Some of the above have educational implications and these constitute a third set of factors. For example, the uncertain status of futures research and the diffuse nature of its effective constituency has resulted in few demands for links between centres of futures activity and the schools. Again, depending upon how it is viewed, futures study may be regarded as a separate discipline, an obscured dimension of existing disciplines or even a meta-discipline. For example, if futures were considered a separate discipline it seems likely that few teachers would feel qualified to teach it without a very significant expansion of preparation and support facilities.

Contrasts with developments in the United States are also instructive. In Britain there has been no equivalent of the pilot projects established in America in the 1960s, no school-oriented futures research centres and very little in the way of relevant educational materials or literature. There appear to be no British degrees in educational futures, no teacher-training programs that are explicitly orientated towards futures and certainly nothing approaches a 'critical mass' of practitioners. In these respects Britain is probably about 15-20 years behind. The explanation for this lies partly in factors noted above. To these we must add internal factors such as diffuse system of control over education, the taxing of professional energies and confidence by political wrangles, the stresses of conflicting demands, and the impacts of system-wide changes such as 'expansion',

comprehensivisation, and later, the painful processes of contraction. Yet there is also a more positive side to the picture.

It would be quite wrong to suggest that teaching, curriculum innovation and administration have been merely reactive. While the present work has criticised aspects of the curriculum innovation movement (chapter 1.2.3.), it should be recognised that considerable time and energy has been invested in projects and innovations which attempt to deal with futures-related problems and issues. Hence, much of what might in America be termed 'future studies', may, in the British context, fall under the heading of peace studies,[40] science, technology and society,[41] world studies,[42] political education,[43] and computer literacy.[44] In other words, concerns that are very similar to those held by futurists, have frequently been expressed and embodied in other forms. It follows that futurists need to develop sensitivity towards, and an appreciation of, the futures-related work carried out by others. Similarly, those with more specific interests would certainly benefit from viewing such interests through the wider perspectives of critical futures studies. Certainly there is potential here for dialogue.[45]

On the other hand, with the possible exception of computer literacy programs, the curriculum areas cited tend to marginal and susceptible to expenditure cuts. Neither do they add up to a properly developed futures approach. Thus the distinctive value of approaching the curriculum via a futures perspective is that it suggests new structuring principles and offers a rationale for the inclusion of concerns, materials and techniques that have not been traditionally associated with it.

To re-orient curriculum theory and practice in the light of principles derived from futures studies may seem a difficult task. But it is arguably less so than continuing to educate for 'the future' without really understanding what this means. Clearly a way must be found between unrealistically ambitious and theoretically under-dimensioned North American approaches and the innate conservatism that prevails in Britain. Perhaps both have a place in critical futures studies: one to expand our shared sense of what is possible, and the other to remind us that history and tradition provide the foundations from which all futures spring.

4.2 Implications of Critical Futures Study for Curriculum Renewal

It is useful at this point to review the general argument. In section one four interrelated sets of problems where identified that had a bearing upon curriculum renewal. In brief, these were as follows:

1. The past-orientation of secondary curricula and their dissociation from significant changes in culture and the wider world.

2. The need to balance prospective and retrospective elements in curricula and to develop a means of relating both more systematically to regularities and change affecting pupils in their present and future lives.

3. The 'inwardness' of schools, their frequent social isolation and the conflict between teachers' strategies of psychological withdrawal and their professional responsibilities (which imply a broadening of view and engagement with wider concerns).[1]

4. In view of cultural pluralism, the practical, uncertain nature of educational problems and diffusion of responsibility for the curriculum, the difficulty of reaching agreement over the aims, content and broad character of second curricula (-a problem exemplified by the 'core' debate) was noted.[2]

These are by no means the only problems involved in curriculum renewal, but they are important, and their potential for resolution may be enhanced via the critical futures perspective developed here. Even when observers have agreed that school curricula remain embedded in the past this has not been accompanied by a corresponding effort to mobilise the symbolic and intellectual resources of the futures field or to assess the educational significance of these. The view that a futures approach "crucially involves prediction" and is thus hazardous, unreliable and inapplicable to educate problems is widespread.[3] It is also profoundly mistaken. As noted in part three, prediction per se is not a dominant concern within the futures field. Hence it is a measure of educationalists' sheer unfamiliarity with futures research that their justifiable unease about prediction appears to have been quite unjustifiably generalised to the whole field, thus helping to obscure its particular contributions.

It was argued from theory, and later from the example by futures education in the U.S.A., that it is indeed possible to develop active curriculum responses to 'the future'. Various deficiencies, however, led to an attempt to revise and re-state some of the concepts, themes and concerns of futures studies. Ah attempt was made to reinterpret the latter through an account of critical futures, which must now be brought to bear on the four sets of problems set out above. But before doing so, it is helpful at this point to summarise some of the major features of this perspective.

1. It draws on the major concerns of futures study (ie seeking to understand, explore and elaborate future alternatives and the choices they pose in the present), but does not automatically endorse 'standard' theories and assumptions, many of which are regarded as inadequate.[4]

2. It stresses peoples' capacities for reflexivity (through acknowledging that these are often hidden and under-developed), entails a commitment to greater self-understanding and an approach to communication based on dialogue and negotiation.[5]

3. Following Habermas, it embodies a presumption in favour of the 'human emancipatory interest'. It therefore seeks to develop critiques of technical and ideological domination, repression and mystification.[6]

4. It seeks to elaborate, make accessible and problematise futures potentials (in particular those arising from technical rationality and technocratic consciousness) via 3 (above), stories, futures research techniques and further development and utilisation of existing human capacities.[7]

5. It attempts to mediate past, present and future, eg by exposing commonalities and interdependencies between 'history' and 'futures', by an extended concept of 'present' and via an hypothesised 'cycle of transformation'.[8]

This outline, like the account above, must be regarded as emergent and negotiable: a metaperspective to be articulated, modified and developed further by criticism, debate and application to specific issues.[9] As is clear from the latter part of section three, it is rooted in several distinct fields or traditions of enquiry, yet lies at the interface in a largely unexplored and unmapped area. Hence it reflects endemic uncertainties and raises numerous questions for further research.[10] Nonetheless, it is now possible to consider how critical futures studies can contribute towards curriculum renewal. The following section deals first with some of the general implications of a critical futures perspective. This serves to consolidate many of the points raised in earlier sections, permits an elaboration of some aspects of reconstructionism and leads into the final chapter. Recognising the need to concretise otherwise abstract ideas, some of the practical applications of critical futures study in the secondary curriculum are explored here. By providing examples of aims and embodiments this work attempts to achieve a level of definition which invites critical responses and is also be suggestive of further work. Chapter 4.2.2. concludes with an outline of some of the problems and potentials associated with this view which would need to be taken into consideration in any strategy of innovation.

4.2.1 General Implications of a Critical Futures Perspective

Critical futures study has numerous implications for curriculum design, study and practice. Since the ramifications are so broad they cannot all be discussed here. It is therefore useful to distinguish four general implications of this perspective, each of which will be discussed in turn.

1. If offers a critique of the existing curriculum and of attempts to change it.

2. It elaborates the concept of 'future' such that this acquires greater pedagogical significance.

3. It supports a rationale for the development of anticipatory curricula, which may be viewed as instruments of cultural adaptation.

4. It brings to bear on curriculum questions a number of concepts, metaphors and methodologies that have not traditionally been associated with secondary education in the British context, thus facilitating a re-thinking of curriculum tasks.

1. Critique

Critiques of the curriculum reflect the commitments – the ideological stance – of those who offer them. Thus conservative critics tend to focus on the transmission of valued elements of inherited cultures and the maintenance of traditional standards. Marxists view the social relations of schooling as part of a repressive system of domination imposed by capitalism. Social reformers seek greater equality of opportunity. While some overlap is often inevitable, critiques tend to draw out particular aspects of curriculum problems and are thus seldom comprehensive in scope. It is therefore prudent to recognise this and to draw on the most useful insights available, regardless of how well (or otherwise) one perspective 'fits' with another.[1] Thus, in developing a future-focused critique one may draw on other approached as appears necessary, while also recognising that a 'futures' view will bring some aspects of curriculum into prominence at the expense of others. For example, this work is not primarily concerned with questions of equal access, with the imputed pathologies of capitalism, nor with the conservation of culture per se. Rather, this critique springs in large part from the existence and consequences of temporal bias in the second curriculum, in research and attempts at innovation.

School rhetoric and parental concerns are united in the belief that a major purpose of education is to prepare individuals for 'future living'. This is particularly evident when strikes, cutbacks or other disruptions interrupt the usual school routine and parents declare that their "childrens' futures are at stake".[2] This is understandable and also deeply ironic. It is understandable insofar as parental responses are based on 'realistic' appraisal of the life chances of their children.[3] Furthermore, education as a social enterprise can, in fact only be directed towards the future (even though it draws upon the past). Educational aims may be expressed in terms of personal development, vocational preparation,

citizenship or 'leisure', but these terms, without exception, depend upon a prospective view, a set of assumptions which embody purpose, expectations, hopes, fears and intentions. Another way of putting this is to say that one may learn from the past, but only for 'the future'. All this is profoundly ironic because, as shown above, (section one and chapter 4.1.2) 'the future' represents a 'missing dimension' in British education, a major hiatus in theory, research and practice. In contrast with some other western countries, its significance in relation to pedagogic tasks (rather than planning in respect of teacher supply or resource allocation) has not been explored. Instead it has remained a seeming nebulous, underdeveloped and underutilised concept, the consequences of which are profound.

The absence of a prospective view of curriculum suggests that undue weight has been accorded to the historical dimension, from which the present springs as a seemingly natural extension. But if, as has been suggested, the latter is constituted from the interaction of past and future, the occlusion of the futures dimension must generate confusion and cause us to lose our bearings[4] A past-orientated stance under-writes continuities (of tradition, understandings, practices, rules and values) precisely when rapid change renders many of these problematic and in need of re-interpretation. It leads, as Polak and others have suggested, to a crisis of identity and purpose. Contradictions increase as solutions to earlier problems lose their effectiveness, yet continue to be imposed on, or in, the present.[5] The lack of a well-developed prospective view (particularly in regard to conceptions of preferable futures), helps to deprive educators of the vision, perspective and strategies required to achieve stability-in-charge. Hence they remain caught up in the turbulence of the present, their time-horizons constricted by the urgency of recurring 'crises', their energies taken up in the effort to maintain systems, some of which may already be obsolete.[6]

The fact that school curricula are grounded in the past, in the ideologies, 'needs' and understandings of earlier historical periods,[7] that there exists a valued (and valuable) school subject for studying the past but none for the future, and that teacher training, research and innovation in general do not embody explicit futures concerns, belies the claims of schools to be actively concerned with the future. Rather, it lends support to those who argue that schools function primarily as agencies of social control, and, in particular, as a means of selecting and grading pupils for the labour market.[8] The progressively shrinking demand for labour represents a major difficulty for a school system so orientated and exposes underlying conflicts which had, until recently, remains hidden.[9] But this also reflects the wider problem referred to above. To even attempt to prepare pupils for "working life in an "industrial society", to educate for "leisure" or even "unemployment" is to frame educational goals in terms which refer back to a socio-economic order in decline rather than to the emergent order in which the pupils will actually live[10] Thus the expressed aims and rhetoric of schools are in conflict with their social functions and changing cultural environment. To begin to educate 'for the future' suggests an orientation that links stability, survival and human welfare with the critical mediation of past, present and future.

But a future-focused critique of the secondary curriculum is not restricted to the exposure and analysis of temporal bias, important as these are. There are other considerations. Prominent among these is the cultural conservatism of the curriculum development movement itself. While some potentially promising developments have been noted,[11] it has also been observed that the movement has failed to reform subject-dominated and exam-centred approaches, to materially influence the hidden curriculum or to bring the wider issues of industrial decline and cultural evolution into the forefront of educational concern. This suggests that the field of curriculum research and study may, in large part, be drawing upon a taken-for-granted world picture although this has become increasingly problematic.[12] Curriculum initiatives from within such a framework may be likened to the Kuhnian notion of "normal science" whereby the bulk of work is devoted to elaboration of an existing paradigm.[13] While curriculum study cannot be considered a science, there is evidence of emerging contradictions that may herald a paradigm change. (See above, especially chapter 1.2.2.) Hargreaves' views concerning alienation illuminate one such contradiction along with some of the limitations of a perspective on schooling drawn from contemporary science.

Hargreaves draws on a number of sociological studies to suggest that it is the hidden curriculum of schools – expressed through selection procedures, general organisation and evaluation – which most effectively prepares pupils for the world beyond school. In his view, this results in "a destruction of their dignity which is so massive and pervasive that few subsequently recover from it".[14] Working class pupils are more seriously affected, but even the academically successful suffer from an over-emphasis on the cognitive/intellectual domain and the relative neglect of other human capacities. A major consequence is that large numbers of young people appear to experience school as repressive and alienating, turning instead to youth sub-cultures in search of identity and self-respect.[15] The argument is more elaborate than can be represented here, but it is the writer's proposals for reform that are of the most concern. These basically involve the abolition or deferment of all 16-plus examinations and the replacement of the dominant cognitive/intellectual curriculum derived from the grammar schools, with a more varied program based on a non-examined core of community studies and the expressive arts.[16]

Such proposals clearly have merit; examinations have become over-determining factors in the curriculum, and the twin focus on community studies and expressive arts may well comprise a more appropriate foundation for future living than do present arrangements. But the approach is vitiated by a complete lack of prospective elements (the 21st century is dismissed as "unpredictable" – p.232) and a failure to engage with the underlying trends and areas of genuine cultural difficulty which we have discussed above (section 3.2). From a critical futures viewpoint, alienation and the destruction of dignity in schools are not explicable solely in terms of the sociology of schooling. Rather, they are connected with wider cultural changes and forces that have adverse affects throughout society. Hall provides a useful summary. He writes,

> the complexity and fragmentation of Western society which are largely responsible for alienation are more than of transient importance: they are embedded in its social organisation.

He continues,

> Western society in its present form exists and can continue to exist only if it treats men as means to abstract (normally quantified) ends rather than as ends in themselves. Not only does industrial society reinforce problems of anonymity, complexity and subsequent alienation, it erodes those institutions which act as stabilisers. Science, upon which industrial society is founded, has eroded religion and…..has created here a vacuum. Those other bastions of security, the family and the community are also falling …..[17]

While we may not wish to take quite such an apocalyptic view or to view "science" as the source of our difficultires,[18] the point to notice is that if the hidden curriculum exerts damaging effects, this is largely because it reflects, or embodies aspects of, wider social processes. It is here that the curriculum field can be seen caught in the strains and contradictions of the present, seemingly unable to oppose, resolve or transcend them. It is also here that a futures perspective of the kind developed here can point a way forward.

From a critical theoretical viewpoint it is the dominance and overextension of technical rationality, the spread of a reductionist technocratic consciousness, that constitutes the major problem.[19] In Habermasian terms (as argued in part three) the human interest in emancipation is threatened by the power, dynamism and sheer practical success of the technical interest in instrumental manipulation. It is not so much that science has "eroded religion", but that powerful new technical capacities have erupted into cultures which were unprepared to receive them. Hence, many of the bonds, meanings and structures of earlier societies have been weakened or dissolved.[20] Possibly the most penetrating criticism of secondary schools is their passivity, their lack of responsiveness, to such phenomena. This, in turn, may be linked with the absence of forward-looking vision.

If the trends and dislocations experienced in the past generation or so are projected forward (as futurists and serious writers of speculative fiction have tried to do), we soon encounter dystopian futures which suggest that technical rationality has no discernable limits. If this is so, then it may not merely threaten community, but human identify and life as we know it.[21] This, perhaps, is the fundamental insight, dimly perceived by many, which fuels the sense of insecurity now prevailing in western societies. But, equally, to anticipate undesirable consequences is, as suggested above, the first step toward avoiding them.[22] This is one reason why learning to come to grips with futures issues in the classroom is so crucial; it does not, in the end, guarantee the resolution of any problem or threat, but it does enhance the possibilities of so doing. Similarly, to view the existing curriculum in these terms is to recognise certain critical tasks. As Apple has suggested, we should seek

> to illuminate the concrete ways in which the curriculum field supports the widespread interests in technical control of human activity, in rationalising, manipulating and bureaucratising individual action, and in eliminating personal style and political diversity.[23]

Later he continues,

> much of the labelling process (in schools) has at its roots a concern for efficiency …(But) the roots of this technocratic perspective lie in a taken-for-granted ideology that provides the constitutive framework for thought in all advanced industrial societies….Consequently, the 'caughtness' of schools and especially the curriculum field in what Kliebard has called a factory a model is part of a larger social problem concerning the lack of responsiveness of our major institutions to human needs and sentiment.[24]

Hence the critique of curriculum that arises from a critical futures perspective may be viewed as part of a much wider field of concern.[25] It is not simply that the curriculum is rooted in, and dominated by, the past, but also that in consequence it helps to obscure the existence of a mode of rationality that supports certain interests and shapes the future in particular ways.[26] In this respect it detracts from the task of defining, asserting and serving authentic human needs and may be considered mystificatory, rather than educational, in effect. The existence of a contradiction of this magnitude implies a need not merely for a paradigm shift, but for what Schumacher called "metaphysical reconstruction".[27] One small part of this process lies in the re-orientation of secondary curricula towards the future. It is to this concept that the present study now turns.

2. Elaboration of 'the Future'

Section three attempted to show that 'the future' is not an 'empty category', remote from learning or being-in-the-world. Viewed as a dynamic field of potentials, it has implications for both. Anticipation, forethought, 'scanning the future' are routine necessities in the conduct of everyday life. Without the futures dimension it is doubtful if we could conceive of goals, express intentions or purposes. Consciousness would be merely reactive, locked into an unchangeable past and an attenuated present. It was therefore suggested that it was the interaction of past experience and future imaging that were together constitutive of the present.[28]

Yet it was also noted that futures are inherently uncertain and open. There are no future facts. There can be no certain knowledge of future states and no tests of truth other than the verification (or otherwise) of prior forecasts and assumptions.[29] The sheer boundlessness of the future and the infinite possibilities latent within it mean that the perception of futures potentials requires considerable cognitive and imaginative investments. It is this perhaps, more than anything else, which sometimes makes futures appear to be remote and abstract. But it was also suggested that development of innate capacities, coupled with techniques of futures research and stories, greatly reduced the effort needed to develop a coherent prospective view. The literature of the world futures debate provides an appropriate 'back-drop' or frame of reference for thinking about the curriculum. Neither is it necessary to try to study everything. Prospective views can be developed via the selective utilisation of the resources of the futures field and their

application to specific problems.[30] It will be suggested below how this can be carried out in practical curriculum terms.

The plurality of possible, probable and preferable futures portrayed in the futures literature has major implications for secondary curricula and the problems with which the present enquiry is concerned. It suggests that our perceived present is a largely contingent outcome of historical forces and calls into question notions of progress, mastery and control.[31] The extent to which such ideas are embedded in curricula is a matter for research, but one way to understand critical futures study is to view it as an attempt to discover their significance for a technological culture in transition. It may well be that the concept of curriculum itself cannot be properly articulated without reference to these questions.[32]

The elaboration of futures potentials facilitates the problematisation of taken-for-granted assumptions about the inevitability, direction, pace and character of social and technical change. That is to say, since we can now envision alternative social, cultural and technical configurations to those which now appear dominant,[33] we need to consider how existing secondary curricula mediate these potentials. Where they are hidden, or obscured, we need to ask why particular conceptions of the future are dominant and to seek out the specific strategies, interests and ideologies that make them so. This is not to suggest that there is a dark conspiracy to be unearthed. Rather it is to seek a deeper understanding of what Habermas calls the "dialectic of potential and will" as new technologies erupt into pre-existing forms of life. As Winner and others have stressed, the resulting dislocations and changes can seem 'natural' and 'autonomous' without a critical awareness of their long-term significance. [34] Thus the elaboration and critical assessment of alternative futures is revealed as a central pedagogical task, both in respect of teacher preparation, research and curriculum design.

At the level of school practice this implies an approach to culture which is active and critical in respect of past, present and future, along with suitable ways of involving students in the assessment of non-traditional, and even controversial, material.[35] It is also essential to establish whether schools can continue merely to 'reflect' what appear to be dominant trends or contemporary 'needs' (eg manpower needs) in society, rather than begin to develop their own anticipatory responses. In the view developed here, these could alert pupils to the issues that have been discussed and equip them not simply to adapt passively to changing conditions, but to participate in the construction of sustainable futures.[36]

Finally, the elaboration of future alternatives offers new (or renewed) models for educational theorising. If T.W. Moore is correct to suggest that the latter draws upon models or projections of society, images of man and conceptions of knowledge, then the futures literature may be a significant source of inspiration.[37] The existence of alternatives to models now in use (and some of these have been referred to above)[38] means that new theories may be developed which are more appropriate to the new conditions in which we find ourselves. In particular, we require models and theories that

embrace past, present and future and engage with the underlying processes which are involved in the transition to the post-industrial era.

3. Rationale

In a critical futures view, curricula are needed which draw upon inherited culture, interpret it 'unto the present', and initiate its reconstruction for the future.[39] Rapid change, complexity and the creation of new dimensions of uncertainty and hazard have made planning and forecasting obligatory in large organisations.[40] Similarly, school curricula can usefully look forward in part because there is no indication that the "accelerative thrust"[41] of social and technical change is at an end, and it is reasonable to expect succeeding generations will face historically unprecedented choices.[42]

It has been acknowledged that the concept of 'change' presents formidable problems of understanding and interpretation that cannot be pursued in this context.[43] But if futurists have agreed on anything, it is that 'change' represents a pervasive, underlying characteristic of the age. This, coupled with assessments of the impacts and costs of our technological civilisation, suggests that future-focused skills and capacities become more important not merely for organisations (whose ready access to such expertise may perpetuate hegemonic tendencies)[44], but also for individuals who otherwise risk becoming more bystanders. Winner illuminates this point in a way that explicitly links it with the technocratic threat that was considered above. He writes,

> members of the technological society know less and less about the fundamental structures and processes sustaining them. The gap between the realities of the world and the pictures individuals have of that world grows ever greater. For this reason, the possibility of directing technological systems towards clearly perceived, consciously chosen, widely shared aims becomes an increasingly dubious matter. Most persons are caught between the narrowness of their everyday concerns and a bedazzlement at the works of civilisation…With the overload of information so monumental, possibilities once crucial to citizenship are neutralised. Active participation is replaced by haphazard monitoring. [45]

While it must be doubted if this, or any other observer, has an authoritative grasp of "the realities of the world", Winner's observations are congruent with our overall argument, and highlight the loss of 'human agency' consequent upon the development of what Mumford calls "mega-technical systems".[46] If it is accepted that this is a pervasive, and alarming, phenomenon then it is reasonable to agree with Skilbeck who was quoted above as suggesting that

> the study and appraisal of contemporary culture, its principle modes and manifestations, <u>its tendencies and possibilities</u>, is a more appropriate curriculum target for schools which wish to prepare children for future living than the snippets and fragments, mostly of a second-hand, factual type, which still commonly feature, especially in secondary education. (My emphasis.)[47]

It has been suggested that the "tendencies and possibilities" of a technicised culture have not, in fact, featured strongly in curriculum debates or designs. The latter have drawn too heavily upon what may be termed an 'industrial-era mind-set' which is arguably in decline.[48] But the intent is not to de-value the past or the ways of construing the world that may characterise particular periods. Rather, the argument is centred upon the suggestion that curriculum can mediate past and future in the creation of the present. It is not by chance that a rationale offered recently in support of history's place in the curriculum applies equally to futures.[49] In the broader view (set out in 3.1.1 and 3.1.2) both are parts of a wider project and a critical, long-term perspective.

Hence a rationale for future-oriented curricula may be founded on perceptions of historically 'situated' change processes, on assessments of their longer-term implications and consequences, and also upon a recognition of ineluctable uncertainty. Hence also our interest in the future-shaping issues discussed above (sections two and three). To stress the importance of such considerations in respect of curriculum research, debate and design is to take a broadly reconstructionist view of education. It is to take the view that, while it is unlikely that schools can be a primary agency of social and cultural change, there is a great deal more that they could do to assist in these processes. They can, in the present perspective, begin to make explicit assessments of the kind of issues raised, evolve practical, forward-looking responses, and in so doing both prepare individuals more fully for future living and fulfil their largely undeveloped potential as instruments of cultural adaptation.[50] It is therefore appropriate to return to the discussion of reconstructionism in order to utilise and extend some of its central concepts.

In chapter 1.2.2. and subsequently, the view was upheld that a fruitful way to understand school curricula is to see them as selections from culture. Some of the features of a reconstructionist approach were outlined: its process orientation, the move away from subject dominance, a concern for problem-solving and for promoting active, critical assessments of inherited knowledge.[51] Two major problems were identified. These were, in brief, the idealistic nature of the proposals, given existing constraints on innovation, and the need to deal with the 'double lag' between school curricula, elements of culture which have become problematic and wider structural changes.[52] In addition, two areas requiring further elaboration were identified. These concerned procedures for environmental monitoring and the wider pedagogical use of resources from the futures field. Leaving the question of idealism aside for the moment, the other points can now be developed.

Recognising the limitations of approaches to curriculum based on individual needs, and forms, or fields, of knowledge, Reynolds and Skilbeck advocate a culture map approach.[53] "The curriculum", writes Skilbeck, "has to guide and orientate pupils towards the culture in which they will live their lives."[54] While there are difficulties in relating culture and curriculum, and descriptions of the former are "bound to be limited and partial", Skilbeck emphasises that such an approach, in principle, makes possible "a culturally creative role for the school and the teacher." Similarly, "for the pupil it ought to permit and encourage the freedom….from which innovations, experimentation and creative action will follow." In this view, education is regarded as "an essential growth

process, rather than a mechanism for socialising youth into a passive acceptance of whatever social circumstances happen to prevail."[55] The writer continues,

> a culture-map curriculum ought to consist of both a way of identifying and analysing the principle features of culture which are of interest to us educationally, and a set of procedures for learning about, assessing, and where desirable, modifying or reconstructing culture.[56]

Among the major tasks of such an approach are the development of an overview of "the fundamental tendencies and principle features of contemporary culture"; the definition of "central themes and groupings of subject matter in the curriculum" and their correlation with the "tendencies and possibilities" of culture; the need for teachers to possess a "critical orientation" and be "willing and able to think of their particular interests and expertise within the framework of a cultural map"; and finally, an emphasis for pupils on "learning problems which focus on the fundamental tasks of awareness, knowledge, personal competency and creativity with reference to the main features of the cultural map".[57] From this basis is developed a core curriculum proposal with the following components.

1. Typical work situations and modes of economic operation.
2. Patterns of social meaning which include rules, norms, of conduct, value systems and common social expectations.
3. Introductions to and practical experience of the principle human symbol systems …..
4. Leisure and recreational interests and opportunities.
5. Social and political institutions.
6. Social and political policy.
7. Styles of interpersonal relationships and ways of handling tension and conflict.
8. Modes of individual expression and creativity.[58]

While recognising that the list is "both schematic and incomplete", that it is less indicative of content than of "processes and activities to be engaged in" and that it implies an active and critical stance on the part of teachers and pupils, it is nevertheless weak in its representation of the <u>tendencies</u> of contemporary culture. That is, of the trends, projections, images and anticipations of the future which, it has been suggested, are so crucial in coming to grips with our cultural transition. Again, if the intention is to assist pupils in the reinterpretation and reconstruction of inherited culture, then this approach involves paying particular attention to those areas which represent major social and cultural problems: the decline of community; the changing nature (and availability) of work and leisure; the predominance of technical interests; institutional obsolescence; economic disparities and so on. That is to say, if it is accepted that the world is changing rapidly, then an essential focus on culture map curricula would be on those areas of dislocation and difficulty where inherited patterns, meanings, values and institutions appear to be breaking down. Rather than avoid these areas – perhaps for fear of arousing controversy – it is precisely here that creative efforts need to be centred. There is now

sufficient evidence to suggest that the failure to come to grips with such issues represents a mounting burden of claims upon the energy, wisdom – perhaps even the survival, of future generations.[59]

A closely related difficulty with the culture map concept as it stands is that while it is prospective in intent, it embodies few or no explicitly prospective elements. To put it metaphorically, such a map needs to show rather more than the usual routeways, settlements and landforms (corresponding to "major features and tendencies of culture"). Marshes, potholes and quicksands (indicating areas of difficulty or danger) should also be marked, and plans for proposed future developments appended. The focus now moves to some of the concepts and methodologies that may be used to elaborate a future-focused cultural map approach, bearing in mind that curriculum embodiments of the same are covered in the following chapter.

4. Concepts and Methodologies

There are four broad concepts or methodologies that may be usefully introduced at this point. These concern techniques of environmental monitoring, the concept of a cybernetic curriculum', future problem landscapes (FPLs) and critical problem selection. Each contributes to the development of future-focused culture map curricula and helps clarify the origins of the aims and embodiments set out in the following chapter.

It has been suggested that schools tend to be strongly bounded, inward-looking and preoccupied with traditional (often academic) tasks.[60] Their ability to 'scan' contemporary culture for educationally important tendencies and themes, or to develop sensitivities to problems in a global, long-term view, therefore remains limited. Yet techniques are available which could alter this such that curricula could begin to reflect and embody aspects of the wider context of continuity and change in which pupils will actually live.[61] Bright's work in the area of technological forecasting is relevant here.

In a seminar given at the First Global Conference on the Future (Toronto 1980), Dr. Bright suggested that techniques developed to assist commercial companies in their planning could be adapted to educational use. He related how managements used to concentrate their attention mainly on technical and economic affairs, but, then found it necessary to cover social, political and ecological concerns. This was in part due to increased public pressures, but also a consequence of a "more multipolar and interactive decision environment."[62] In other words, businesses, due to their much more exposed position, have had to adapt much more rapidly than schools to changing circumstances and have developed appropriate new management techniques. One of these, dubbed "forecasting through monitoring", may be summarised as follows. It has four stages.

1. A search of the environment for signals that may be forerunners of significant change.
2. The identification of possible alternative consequences if the trends they suggest continue.
3. Selection of the parameters, policies, events and decisions to be observed and followed in order to verify the speed and direction of change.

4. Presentation of data from the foregoing in a timely and appropriate manner for management's use in decisions about the organisation's reaction.[63]

Clearly this cannot be directly applied to schools which, for one thing, do not possess a sufficient degree of autonomy. There are also other questions to be resolved. For example, which 'signals' may be held to herald change, and how should their significance be assessed? How may one identify possible consequences? What criteria

Figure 6

Ed Quest: An Environmental Scanning Process for Educational Organisations

Preparation for Ed QUEST Session
- establish membership of team
- determine monitor function of QUEST team
- review principles of Ed QUEST process

Notebook of Future Prospects
- trend charts of key variables
- speculative articles
- speeches/articles by policy influentials
- social & technological forecasts

Nature of Organization
- mission (clients, services, activities)
- indicators of organizational performance

Analysis of Future Events
- identify critical future events
- select high impact/high probability events
- analyze relationship among high impact / high probability events (Cross-Impact Analysis)

Identification of Strategic Options ----------→ Development of Scenarios/ Session Report
- enhancing options
- inhibiting options

Selection of Strategic options
- identify strengths/weaknesses of organizations
- complete strategic options matrix

Incorporation Into Strategic Planning Process
- assemble planning teams
- develop implementation recommendations per strategic option

should be employed in step three? How should the data be presented, and to whom? Who, indeed, should carry out such an exercise? Of these, the first three have various answers which are dependent upon need and context, and may be pursued through the forecasting literatuture.[64] The next may be left aside for the present. But the question of who might engage in such an exercise is of particular concern to us here. One answer is provided by Ed Quest.

Ed Quest is described as "an environmental scanning process for educational organisations" (Figure 6). It is highly structured, draws on a wide range of sources, generates a range of possible institutional responses and primarily involves high level decision-makers. While it is uncomfortably reminiscent of the 'objectives model' of curriculum planning,[65] it provides a suggestive example of how educational organisations could begin to recognise and respond to environmental changes. Its major weakness as it stands is that it appears to involve only the select few. To be effective at the school level it would need to involve a much wider cross-section of the teaching profession. But given the institutional structure of the British educational system, and the nature of existing constraints, this does not seem to be a likely prospect. There is, however, a way out of this difficulty: that is to see techniques of this kind not simply in terms of organisational planning, but as integral elements of future-oriented curricula and programs of teacher preparation and training. That these have become a necessity should now be evident.

The development of capacities for environmental monitoring may not simply be dependent upon changes in organisation or approach, important as these are. It may also be affected by innovations in other areas. It was suggested at the end of chapter 3.2.3 that school curricula might be designed to change continuously in response to changes in the wider world.[66] As various writers have made clear it is 'change' that is now the norm, rather than its opposite.[67] It may therefore be suggested that, while the secondary curriculum has a legitimate interest in continuity, it can also seek a dynamic equilibrium with the wider culture through continuous adaptation, renewal and transformation. As things stand, such a view may seem problematic and even fanciful. But the technical means to give it substance already exist - ie the new information technologies. These possess the adaptability, rapid responses and encyclopedic capacities that will permit new, interactive, forms of curriculum to emerge. Indeed, there are already signs that this is happening (see below). The full implications of these developments cannot be explored here, but they could facilitate environmental monitoring at the classroom level and continuous revision of reference material.[68]

Many schools are already equipped with micro-computers, and, in time, it seems likely that they will become standard equipment. But this is only a beginning. The rapid spread of computing capacity means that it will be technically possible for schools to have access to a potentially unlimited number of data bases, and hence to up-to-date information on almost anything. Such developments promise to transform the nature of school work.[69] To take a simple example, a project on tropical forests could draw upon contemporary data, reports, case studies, recent media productions and so on, rather than upon outdated printed sources. (This is not to suggest that books will no longer be

needed, but rather that their educational uses will change). Furthermore, time series data can be 'animated' by the imaginative use of computer graphics, thus allowing pupils to monitor and observe recorded trends and to project them into the future.

Of course, the existence of these technologies and of the unlimited amounts of information they can process, does not mean that schools will be able to exploit them to the full. Apart from questions of teacher resistance, organisation and cost there are problems relating to the selection and validation of information which may require the creation of an Educational Data Authority. This could act as an intermediary between schools and the many organisations and bodies involved in processing and exchanging data. But great care would need to be exercised regarding the functions and political independence of such an organisation.[70]

Clearly the development of environmental monitoring capacities and of 'cybernetic curricula' are not simply technical questions. A future-oriented, cultural map approach utilising electronic media represents a dramatic departure from the traditional subject-centred, print-oriented, teacher-led curriculum, and may be expected to generate opposition and alarm in some quarters. Teachers' responses to 'change' are discussed below. But it may be noted here that, much as futurists have offered their own views of desirable futures, so too have computers specialists attempted to anticipate the effects of "computer cultures" upon education. Prominent among such writers is Seymour Papert.

Papert offers a provocative vision of an educational future in which children can avoid the right/wrong, concrete/formal dichotomies of conventional schools for an infinitely more flexible learning environment in which computers act as powerful new learning tools. In his view they breach subject boundaries, promote new understandings and encourage new cognitive styles.[71] For example, he writes,

> school teaches that errors are bad….The debugging philosophy suggests an opposite attitude. Errors benefit us because they lead us to study what happened, to understand what went wrong, and, through understanding, to fix it. [72]

Furthermore, Papert suggests that wide ownership of computers "will gradually return to the individual the power to determine the patterns of education."[73] Leaving aside, for the moment, the question of how desirable such developments my be, there is some tension between the author's optimistic view and his recognition that "in many schools today…..the computer is being used to program children" (ie via computer-assisted learning, or CAL).[74] This may be read as an implicit recognition that there is some ambivalence about the technology: it has both repressive and emancipatory potentials. As should be expected from the above, they exert new costs, generate new dependencies, pose new dangers even as they illuminate new possibilities.[75] Hence the assessment and utilisation of computers in education needs to be informed by a critical understanding of the ambivalence of technology in general, and the tendency of some advanced forms to render effective human control problematic. (See Winner, 1977.)

Papert's humanistic vision in which "the computer acts as a transitional object to mediate relationships that are ultimately between person to person"[76] acts as a projective image of a technology subordinated to human ends. If the vision can be sustained (and the writer is well aware that this is crucially dependent upon people with the necessary attitude and skills)[77] then it will lend support to the view that schools need not be reactive institutions tied irrevocably to the past. Rather, it suggests that the judicious use of computers can point the way towards curriculum forms which can model the future as readily as the past and present, and encourage active, future-shaping responses from pupils.[78]

The availability of plentiful, accurate data, coupled with the means to store and manipulate it would facilitate the creation of future problem landscapes, of FPLs. These exist in many forms and represent concrete embodiments of a critical futurist approach that may serve to integrate and focus a range of curriculum activities in this area. Metaphorically speaking, they are maps of aspects of the future which are of concern to us. They may be constructed of various media (though at present most commonly in printed form) at any level of generality (from the individual to the global level) and within any conceivable time-frame. The elaboration of an FPL draws on any or all of the sources mentioned above and may be carried out by individuals or groups. It is thus an inherently flexible tool that can be put to a variety of uses. In general terms these include:

- helping individuals, groups, institutions make their assumptions about the future explicit;
- focusing attention upon potential problems before they become pressing;
- illuminating the relationship between different problem areas;
- investing futures with sufficient reality to stimulate active responses;
- promoting holistic overviews of possible future developments;
- showing up differences in understanding which may generate a consideration of alternative values, policies, priorities.

In curriculum terms, they:

- promote future-focused skills and competencies;
- permit the linking of individual concerns with wider issues;
- suggest numerous areas for critical study;
- give teachers and pupils the opportunity to participate in a common effort;
- help to bridge the distances between schools and wider cultural and global processes;
- provide a basis for exploring the nature of present and future choices;
- provide a more balanced temporal perspective;
- can be utilised as a focus for the integration of existing subject content and disciplines.

Such a list is by no means complete, nor could it be, since the educational potentials of future problem landscapes have yet to be properly explored in the British context. Yet, partly by way of re-capitulation, it may noted that FPLs in printed forms are already plentiful, and reflect a wide range of approaches at the global, European and national

levels. (See section two.) Others focus on particular issues in greater depth (ie the futures of the family, transport, communications etc.). Works of speculative fiction have been mentioned that are FPLs in their own right (in that they picture credible futures which serve as projective models for exploration and assessment – see chapter 3.2.1). The "long-term multifold trend" produced by the Hudson Institute embodies a number of FPLs which attempt an analytic grasp of fundamental alternatives and choices over the next 200 years.[75]

The range and variety of these works is reflected in the literature on futures education. For example, as noted in 4.1.1, Glines identifies "four global factors' which he believes should be represented in school curricula: the communications revolution, multilateral world problems (hunger, multinational corporations, the population/resource balance), the biological revolution (see below) and what he calls "outmoded ethics".[79] Shane offers an "inventory" of ten major problems which include: the value crisis, institutional overload, the lack of future-focused role image for youth and the naïve use of technology.[80] Again, Husen's work rests on six assumptions about future trends in society. These are: accelerated change in the wake of continued technical innovation, more leisure, greater exposure to international affairs via travel and the mass media, increased flows of information and value pluralism, and finally, a continuing disequilibrium between technology and ecology.[81]

The variety of these concerns and the language in which they are expresses, could be interpreted as evidence of confusion. But this would be a superficial conclusion. In fact, they reflect some of the underlying uncertainties that have been referred above (see 1.1.1 and section three) from which it follows that there can be no single, 'correct' way to elaborate futures potentials. Some method, however, is required to deal with the complexities that arise, and a major pedagogical task is to develop criteria for selecting which problems and issues should receive attention. Teige, Harman and Schwartz' work on "The Problem of Critical Problem Selection"[82] sets out a systematic procedure which can be adapted for educational uses. They designed an "analytic filter" which rated problems according to their "intensity of impact, dimensions of impact, duration of effects, solvability" and so on.[83] Their paper concludes with an outline of 41 major problems, which may be viewed as their version of the future problem landscape.

Work of this kind is suggestive for the school context, though clearly, other criteria would be needed. One approach could be via the embodiments of central futures themes and concerns (see following chapter). But clearly, the emphasis in schools need not be so much on the comprehensiveness or sophistication of the FPL. Of equal importance is the character of the institutional milieu and the relevance of selection criteria to individuals in their social setting. It is in this sense that proposals for community-orientated education could be re-interpreted through a futures perspective.[84]

It is not the intent here to develop an FPL. Instead this work has tried to show that ideas, methodologies and concepts derived from the futures field generally, and exemplars drawn from futures education abroad, provide some of the "raw material" from which whey may be derived. Furthermore, as a reconstructionist approach to culture stresses

active and critical responses, so an approach to the resources available must be critical, interpretive and evaluative. As noted above, it is not possible to simply "take over" work carried out elsewhere and try to apply it within a different cultural environment. Hence, a major research task for British education futures work is to evaluate overseas work, develop its own tradition of enquiry and promote a continuing dialogue with others. This task is less daunting that it may seem since there are already signs that a futures approach to curriculum is being perceived as a necessary development by teachers. (See below). In addition, there exists a growing body of work that is specifically related to the wider European context, and hence forms an appropriate background for British work. A brief examination of "Europe 2,000", carried out under the aegis of the European Cultural Foundation, will illustrate this and bring together some of the central themes of this study.[85]

Europe 2,000 represents a detailed, well-researched and historically-grounded FPL in its own right. It deals not simply with the familiar litany of problem issues, but offers a critique of the dominant mode of economic rationality which, its authors suggest, prevails in Europe. It therefore poses important questions about economic and political organisations, systems of thought, the origins and nature of alienation. Such concerns lend it a greater depth and coherence than many overseas studies. It refers explicitly to the work of Habermas, agreeing broadly with his analysis of the interdependence of advanced technologies with the corporate nation state and the "need" of both to extend their patterns of control.[86] It outlines a case for a shift from "economic" to "cultural" rationality and argues for social differentiation, increased sensitivity (toward other groups) and a "reinvigoration of…..participative and representative democracy".[87]

This study, carried out over eight years, identifies six key trends in Europe. These are, an international economic crisis; global conflict over resource use, increasing alienation, the decline of the older, agrarian, Europe, dissatisfaction with restrictions of access to information, and social polarisation.[88] Each of these is covered in some depth, and the conclusion is reached that the traditional solutions of "left" and "right" are unable to deal effectively with them. Instead, rather in the manner of Polak and Boulding, it is suggestive that the diffusion of "formative ideas" may prefigure significant changes. Among these are that society needs to become more resource-conserving, to be "tool-using rather than machine-used", to embody a concept of "quality" and to favour smaller scale social and economic units.[89]

The book does not offer a true theory of social change, neither does it attempt to predict what will happen. It is normative in the sense that it identifies "desirable" resolutions to macro-problems, and sketches in the parameters within which the authors believe choice and direction may be exercised. It sees a transition to post-industrialism as virtually certain, the major question being (to polarise and simplify a substantial argument) whether this will be via the route of de-industrialisation and continued social and economic decline, or, via devolved planning and conscious transformation. The latter could be assisted by a wide appreciation of what is at stake, coupled with the emergence of formative ideas such as those noted above.[90] In other words, the book usefully summarises the debate about the future of Europe. This is clearly of great concern

educationally, and it has many implications for the development of future-oriented curricula. For example, Hall suggests that

> the more one examines the literature of future speculation, the more one is stuck by the remarkable similarity of the analyses contained there. That might indicate simply a tired and conventional quality of thinking, (but)…..we would prefer to argue that is shows how clear the broad, underlying trends are.[91]

It is possible to see here the basis for a "deep consensus" that could guide the curriculum field toward a renewed understanding of its forward-looking tasks. It should be emphasised that this is not a consensus that could resolve conflicting priorities, values, political and ideological differences or substantive questions of understanding or interpretation.[92] Rather, it is one that alerts us to "powerful shaping trends", their possible consequences, and hence the need to consider their implications in, and for, the curriculum. This study has suggested that such trends are brought into focus by the elaboration of future problem landscapes and other such conceptual tools. Neither should one neglect broad, synthesising works (eg Harman's Incomplete Guide to the Future, 1979: Henderson's Politics of the Solar Age, 1981) with their specimen resolutions of the central issue. There is no sound reason why material of this kind cannot be introduced into the mainstream of educational theorising, curriculum debates and innovation, and teacher preparation. Together with the critical perspective developed here, these tools, materials, concepts make it possible to suggest positive responses to the four impediments to curriculum renewal which were set out at the beginning of section 4.2.

1. Dissociation and Past-Orientation

This work has attempted to show that secondary curricula need not remain dissociated from the wider culture, nor need they remain past-oriented. While a future-focused, culture map approach presents its own difficulties, it is clearly better to invest time and energy in attempting to resolve these, rather than continuing with the present policy of drift, which, as Skilbeck suggests, is no policy at all.[93] It was also suggested that the notion of pedagogy itself is not comprehensible without explicit future-focused elements. It must, in the light of the foregoing, pass beyond a concern for reproducing a given form of society to the exploration, assessment and problematisation of alternatives. If schools are indeed intended to prepare pupils for their future lives in a context of continuing change (and continuity), then they will need to begin to mobilise the materials, ideas and other resources of the futures field which can be regarded as a constituent part of education itself.

2. Balancing Past and Future, Responding to Change

In order to achieve a defensible temporal balance in the curriculum considerable investments will need to be made in the areas indicated above: in research, curriculum development and innovation, in-service and initial training, the establishment of a "community of enquirers" embracing the research world and that of the schools. But none of this will happen without a much wider appreciation of the need for future-focused

approaches. Hence the major concern of this work has been to explore the central ideas, offer a critical map of this under-utilised field, and to initiate a long-tern 'conversation' regarding its centrality to curriculum tasks. To this end it has been suggested that history, current affairs and futures be regarded as elements of a wider enterprise: one that recognises the ways that past and future interact to mediate the present. To 'balance' past and future is to critically deploy the resources of the past in order to explore and create sustainable futures.[93] It is to be future-responsive, rather than past-determined, agreeing with Fragniere that "we have no choice but to reflect on the future, (it)….is not merely useful, it is indispensible".[94] The study has also shown that school curricula, particularly aided by the new information technologies, could begin to systematically reflect wider changes via techniques of environmental monitoring, and explore their implications (eg via FPLs).

3. Social Isolation and Psychological Withdrawal

Both of these responses my be understood as arising from the constellation of intense pressures acting on schools and teachers, coupled with the collapse of consensus regarding their purposes and functions. But numerous schools have shown that it is possible to overcome this isolation and develop substantial links with the wider community.[95] The further step of engaging with aspects of the wider culture, and even of the world community, is more difficult, but steps have already been taken in that direction by some, and this work has tried to show why this is a necessary development which requires full and proper support.[96]

The question of support (both in terms of overall resources and support systems) is a crucial one. There is abundant evidence to suggest that, on the whole, teachers are not receiving the support they need if they are to carry out the demanding tasks in cultural mediation. They have neither the time, tools, training nor support systems to initiate and sustain constructive changes in school practices. (See section 1.2.) (It is rather as if a master cabinet maker were to equip his craftsmen with obsolete tools, ambiguous plans and unclear instructions, then expect them to produce fine furniture rapidly and continuously.) Under such conditions, it is unsurprising that teachers become tired and withdrawn.

There is no simple answer to this problem. Yet failure to resolve it will almost certainly accelerate the decline of state education, and encourage the development of a non-state sector. (See conclusion.) One way to gain more, and better, support is to engage in the political debate about resource allocation and social priorities.[97] But concurrent with this, teachers, and teacher organisations, could attempt to develop conceptions of professionalism that are more adequate to the future-focused tasks outlined above. This involves a decisive move away from regarding the teacher as a purveyor of knowledge, and recognition of the wider cultural role to be undertaken.[98]

4. Lack of Consensus

It is doubtful if, in a pluralistic society undergoing a complex and ill-understood transition, we may expect a high level of agreement over the aims, content and broad character of the secondary curriculum. But it has been suggested that a "deep consensus" regarding macro-trends and the broad educational tasks they imply, can be derived from a careful reading of the futures literature. Thus, the latter may be regarded as a source of curriculum integration and a stimulus to renewal.

In the critical futures perspective developed above, the trend of greatest concern at the metatheoretical level is the over-dominance of the technical interest(s) in instrumental manipulation, which is evident in the continuing disparity between technical and socio/political innovation. It is this which gives rise to a sense of 'breathless change' and fuels the technology-out-of control theme in critical and speculative writing alike.[99] It may be implicated in widely-felt fears of de-humanisation, loss of 'human agency' and confusion of purpose and meaning.[100] It suggests that our most likely futures will be Dystopian in character and involve a deterioration in the overall condition of life. Whether this occurs or not seems to depend upon the degree to which authentic human needs and purposes can be continuously re-defined, re-asserted and given appropriate political expression.[101] The influence of education in regard to these 'global' issues may be decisive, but as one of a number of institutions with an <u>inherent</u> interest in the future, there are a number of concerns which can be incorporated in secondary curricula. These require elaboration and debate but may well include: a renewed vision of human potentials and personal development;[102] a concern for the reconstruction of community life and identity;[103] a commitment to the preservation of life in all its forms;[104] and, beyond all of these, an acceptance of individual and collective responsibility for the future.[105]

It is commonly suggested that we have now reached a "turning point", a "hinge of history" upon which all human aspirations depend.[106] This is true insofar as we now have the technical capacity to bring life as we know it to an end. But it is frequently forgotten that later generations are likely to face similar dilemmas equipped with even more powerful and far-reaching technologies. Thus it is not simply we who must live "at the breach", but they also will be permanently poised between fulfilment and destruction. It is therefore falls to us to articulate, define and defend the fundamental commonalties of interest in freedom, dignity and the preservation and enhancement of life, upon which survival depends.

If this is accepted, it leads to a view of curriculum which acknowledges our debt to the past, but which is transformational in intent and committed to working toward futures which are both "desirable" (in the sense of keeping a wide range of options open) and sustainable.[107] It suggests that education can pursue human development and differentiation within a context of globally-shared problems and responsibilities. Such a view permits the re-structuring of secondary curricula in new, and more positive, directions. It is not time to consider some of the specific forms, future-focused curricula might take.

4.2.2 Futures Theory Into Curriculum Practice

This venture into the various fields which contribute toward a critical futures approach suggests that while a number of difficulties have yet to be resolved, it is nevertheless both possible and necessary for secondary schools to begin to re-orient their work toward the futures dimension. In the view developed here the latter is viewed not simply as an abstraction but as a dynamic field of potentials inextricable bound up with curriculum tasks. Wherever and whenever these potentials remain implicit, unexamined and absent from the curriculum, the latter remains impoverished. Since many possible futures represent significant departures from part and present experiences, approaches to the secondary curriculum that do not effectively address the implications of major problems and dimensions of change, which merely conserve and transmit valued elements of past culture or which attempt to induct pupils into aspects of contemporary culture – such approaches are of limited value as preparation for life in the turbulent, post-industrial milieu.

Following a modified reconstructionist approach, this work has emphasised the need to develop curricula that make valuations of culture (which is seen as extending into the past and future), draw on broad, prospective views of the emerging 'world picture' and equip pupils to participate with others in helping to shape (not merely 'cope with') the future world. The full implications of such an approach and such a pedagogy can only emerge through dialogue, practical application and long-term co-operative effort. But it is useful to characterise futures curricula by suggesting appropriate aims, and by outlining some of the ways these may be embodied in practice. Again, too, what follows is illustrative, rather than definitive (though the 'illustrations' spring from critical futures concerns).

1. Aims and Embodiments

A list of aims is not the only, or the most important, step in developing a curriculum proposal. It does, however, allow one to signal intentions and therefore provides foci for discussion. In turn, the articulation of aims rests on a view of the nature and purposes of the proposal. It is therefore useful at this point to set out a working definition of futures education as developed this here. The following may be suggestive.

Futures education is a broadly integrative approach that arises from a shared emancipatory interest in the future. Its basic concerns are first, to help pupils locate themselves in the wider processes of socio-cultural continuity and change in order that they may participate in working toward the futures they want; second, to explore with students some of the major problems and possibilities that lie ahead, and thereby sensitise them both to the interdependence of past, present and future and to implications of choices and decisions in the present; third, to assist them in the acquisition and development of knowledge, attitude, values and skills appropriate for living and working in the post-industrial era.

Clearly this raises questions – for example, what is meant by "a broadly integrative approach".[1] It also rests on the presumption of a "shared emancipatory interest", which

may be regarded as a defensible presupposition[2] drawn from the work of Habermas and Jouvenel. Again, the third focus of common involves asking what may be "appropriate" in this context. Similarly, the view that students might be encouraged to participate in 'actualising' their conceptions of preferable futures raises questions about disposition of power and authority both within and outside of schools, and the extent to which futures are, in fact, amenable to human influences.[3] Such questions have few unambiguous answers. The process, however, of proposing aims and attempting to embody these in concrete curriculum terms may serve to develop and broaden a field of education discourse from which answers may be derived. As noted in chapter 3.2.2, such answers will themselves be provisional and subject to continuing revision and reinterpretaion.[4]

Of the many aims that could be linked with futures curricula, seven are given below which attempt to cover the central issues and purposes in this area.

1. Helping students to develop anticipatory consciousness. That is, an ability to look ahead and make value judgements about possible, probable and preferable futures.

2. Stimulating evaluations of the cultural heritage, breakdowns of meaning, emerging areas of hazard and social options.

3. Developing an ability to view immediate, close-up phenomena in a global, long-term context.

4. Helping students to understand the ambivalence of advanced technologies, and their role in bringing about socio/cultural change and the need to subject these processes to constructive criticism.

5. Stimulating an awareness of the biases and sectional interests embedded in particular views of the future, and the implications of these.

6. Promoting the critical utilisation of futures research techniques (such as plans, projections, forecasts, scenarios, futures wheels etc.), and an understanding of their limitations.

7. Exploring futures potentials through speculative literature, poetry, drama, film, video, simulations and other visual and imaginative media.

Such a list clearly derives from the foregoing discussion which does not need repeating here. But the discussion can be taken a stage further by considering curriculum embodiments of the underlying themes. It is useful to refer to embodiments because in Schon's words, "curriculum purposes, and reasons for them, must be communicated by language…(but) will inevitably fall short of encompassing the full meanings and real intentions of the parties to….curricular deliberation:.[5] To proceed in this manner therefore makes it possible to specify what is being suggested in a more concrete way and in a form which is more accessible to critique and testing. To sample futures curricula

makes it possible to return from the abstract heights of metatheory to the level at which this study began: that of the practical curriculum implemented by teachers in secondary schools.

The aims listed above can be collapsed into three broad categories, two of which represent tasks that can be accomplished in schools (and are hence illustrated below), while the third represents wider purposes that depend on factors external to the school. The implication here is that, from a critical futures viewpoint, certain tasks are regarded as appropriate to schools in an age of transition, but there is no attempt to compel individuals to participate in socio/cultural reconstruction and renewal. The three categories are as follows.

1. Developing an awareness and understanding of long-term macro-change processes.

2. Developing specifically future-focused competencies.

3. Communicating and working with others to create desired and sustainable futures.

These may form the basis for integrated futures curricula at any level, and may be elaborated according to context and need. This work now turns to embodiments of (1) and (2), and return to (3) in the conclusion.

Awareness and Understanding of Macro-change Processes

Change is omnipresent, extending into past and future, and spatially throughout the material world. Thus learning about change will involve the use of historical data, contemporary experience and materials, and 'future imaging'. As noted above, the futures literature provides accounts of major processes of change, and these accounts are an important educational resource. Rather than provide a further summary of these, it is useful to take two contrasting examples – the impact of man upon the natural environment, and the implications of medical technologies – to show how such processes can be made accessible within the classroom. (For the purposes of this discussion it will not be assumed that the new information technologies are widely available.)[6]

A report published in 1981 told of "a recent study of seven-year olds in south London (which) showed that 82% of them did not know that peas grew in pods".[7] Clearly children take their 'given' environment very much for granted. Thus a major justification for schooling is that it can widen pupils' horizons. Yet to perceive oneself as a participant in, and a cause of, environmental change may require something more than the familiar, often compartmentalised, views provided by history, geography and environmental studies. Rather, it requires a perspective that draws on many sources and is meaningful to the individual. That is, one which begins from the existing and immediate social/spatial/temporal context and ranges out in time and space to the 'otherness' which lies beyond. It is, perhaps, only in coming to grasp with aspects of this 'otherness' that

the present, the 'here and now', can be seen for what it truly is: a temporary balancing of forces in a matrix of continuing evolution and change.

Numerous accounts exist of the impact of the man on the natural environment, both in Britain and abroad.[8] Of particular value in schools are historical accounts of the local area which can be contrasted with the present. These highlight processes of change and indicate trends that can be projected into the future. An example is provided by Foran's notes on the Zoology of Portsmouth (1911). This showed that the extirpation of plant and animal life was well advanced by the beginning of the 20th century. In a style quite devoid of the stridency of some later environmentalists, Foran shows how the development of Portsmouth, even before the later 'building boom', resulted in great natural losses. Today, the areas he described are so intensively utilised by people that no significant wildlife remains.

Comparisons of the Portsmouth of "yesterday" and the sprawling city of "today" yield many such contrasts that undermine the taken-for-grantedness of the present. If the latter is so different, the question arises as to how things might change again in the future, and what dynamic forces may be involved. Thus one may consider population trends, economic, social and lifestyle changes, the development of the city as a holiday resort, and so on. The observation of such changes readily leads to questions about the future. What will Solent City (as it has already been called) be like to live in by the year 2050 or 2100? Will there be sufficient space for recreation? What assumptions are built into the local authority's structure plan for the area? Will the few remaining 'natural' areas be preserved? Such questions lead on to others. For example, the extent that local changes reflect or contradict trends in other cities or countries, about whether or not short-term changes and decisions add up to long-term improvement in the overall conditions of life. It is through seeking answers to such questions that a sense of process and direction may be derived which may later inform action.

It is precisely here that futures literature becomes directly useful. For, despite various differences of interpretation, there is overwhelming agreement that the future contains significant threats to our well being and that of the environment. Thus, as a summary of Global 2000 has it, the report "indicates all too clearly…that unless some basic policy changes are introduced within the next few years, life in 20 years time will be substantially worse than today". The reasons for this include "overpopulation, resource depletion and natural systems degradation". This, and other similar works serve to sketch in the wider context and to show how local changes contribute to, and are part of, global processes and problems.

The linking of local and global issues, of past, present and future, of short and long-term views, of direct experiences with recorded accounts provides a basis for evaluating the desirability of observed trends and potentials. It is then but a short step to consider possible responses, changes in policy, strategies of intervention which could falsify these projections. While the difficulty of reaching agreement about, or generating responses to, seemingly distant possibilities should not be underestimated[9] two points should be noted. First, it is evident that futures concerns can be addressed in the classroom. Second, if

observers are correct to suggest that global problems remain unsolved due to a lack of political will, then a way forward may be via the development of long-term, global sensibilities and the encouragement of wider citizen participation, both of which may be seen as consequences of a futures approach.[10]

It is doubtful if any single field or subject can, by itself, cope with the broad questions of environmental change. This brief outline has touched on history, geography, ecology, current affairs, planning, political studies and forecasting. Perhaps then, these and other areas of knowledge may be regarded less as primary determinants of curriculum structure, than as tools or resources to be drawn upon as needed. (See below.) This is certainly the way that intuitive images of environmental futures should be regarded.[11] As noted above, these have an important place in futures curricula. Among other things, they act to dramatise areas of concern, round out analytic scenarios, examine specimen solutions and, overall, suggest that considered responses in the present are preferable to 'crisis management' later.

There can be few areas of human activity of which the last observation is more apposite than that of developments in medical science and technology. Rooted as it has historically been in the ancient desire to alleviate human suffering, the advance of medical science now poses quite new ethical dilemmas and holds in prospect possibilities that seem to contradict humanitarian impulses. Far from being merely a transitory issue which is easily resolved, it provides an instructive example of the developing opposition between human needs and technical imperatives.[12] It is referred to here in part because it illuminates some of the more theoretical points made above (chapter 3.2.2), in part because it represents a major life problem (or set of problems) which students now in school will experience and need to deal with, and in part because it represents a class of problems that are not yet treated systematically in secondary curricula, (ie those relating to the ambivalence of technology). As with the previous example, it requires a multi-disciplinary approach which draws both on historical and prospective sources.

Many starting points are possible. One could begin in the present century, or perhaps outline the history of medicine from its primitive and classical origins, through the middle ages and into the industrial period. Here one could note the important medical discoveries that led to the rapid growth of human population during the last two hundred years, and some of the problems associated with this unprecedented development. Historical accounts can be juxtaposed with literature to convey more fully the conditions of life at various times.[13] The resulting perspective highlights the fact that today's reality grows out of the past, even as it foreshadows those yet to come. It allows us to value past achievements (-an essential part of a critical futures view), while at the same time recognising that many of these have unforeseen costs and pose new problems (eg those associated with the progressively ageing population structure of Western societies).

An historical perspective leads quite naturally to a review of medical issues in the present: disparities between different areas in terms of population growth and health care, the control of fertility, contrasting approaches to medicine and human well-being, etc. Of particular concern is the dilemma that, due to the cost of certain forms of treatment, puts

some doctors in the invidious position of having to choose who will be treated, and, in some cases, who will live or die.[14] (Indeed, the medical profession may be in more difficult, socially exposed position than teachers precisely because it has more immediate impact upon people's lives and their physical integrity.) If it is conceded that the resolution of such issues is a legitimate public concern, then it is difficult to justify their exclusion from school curricula. In fact, the proliferation of biomedical issues and dilemmas calls for informed public debates and serious treatment within schools. For example, the re-definition of death, genetic counselling, artificial insemination, in-vitrio fertilisation and increasingly sophisticated transplant procedures all lead directly into new ethnical territory.[15] Already there are reports of a "black market" in some human organs – a possibility that once might have (incorrectly) been dismissed as "science-fiction".

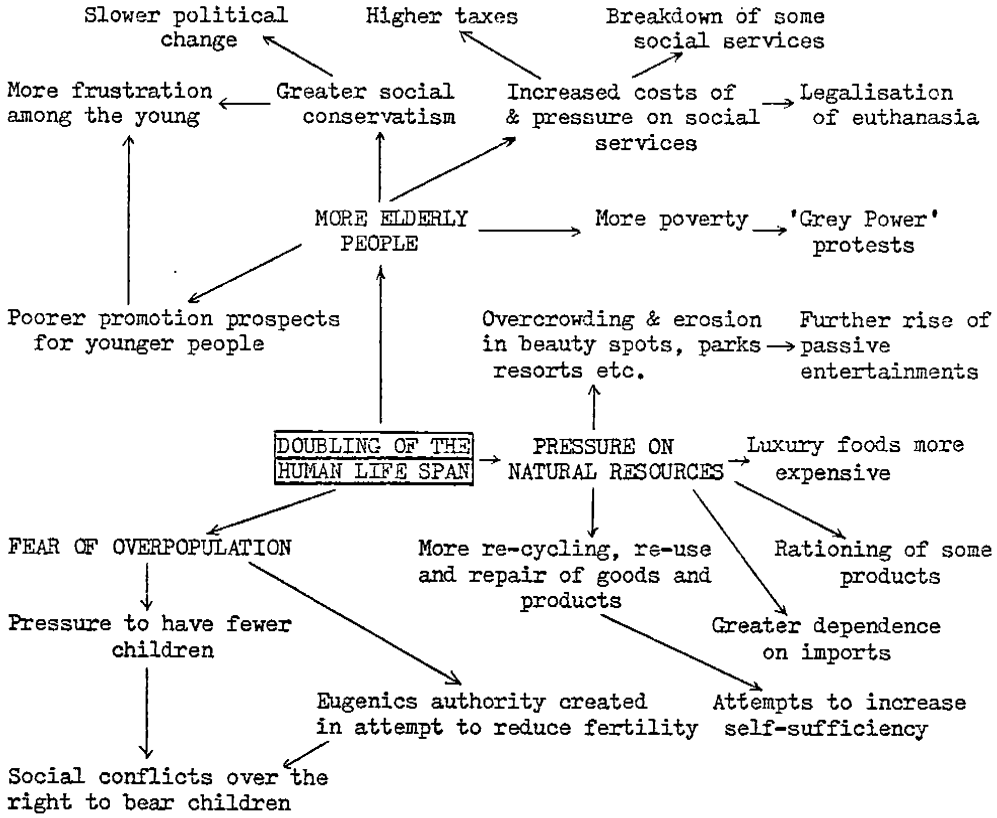
Contemporary issues of this kind can be monitored through the media, from which material may be derived for essays, discussions, group work, dramatic presentations, projects and so on.[16] But this is only a beginning. Such issues foreshadow a long series of dilemmas that will progressively affect the very nature of human life. They include the ability to choose the sex (and possibly other characteristics) of children, the advent of life-extension techniques and technologies, new person/machine interactions, genetic engineering and the promise of near immortality. In the ultra-conservative world of education some of these may seem too far-fetched, too improbable and distant, to warrant serious attention. But many well-qualified observers would not agree with this assessment, and put forward convincing evidence to the contrary.[17] Again, such prospects no longer seem incredible when we recall that it only took about eighty years for human beings to achieve powered flight and travel into space. But regardless of the actual time-scale involved, this does bring the discussion back to a central and persistent, problem.

Extensions of human control over the external environment have been regarded as consonant with improvements in the human condition.[18] But, to put it briefly, turning advanced techniques of manipulation and control <u>onto man himself</u> raises the possibility of transforming him from a semi-autonomous <u>subject</u> into a relatively helpless and passive <u>object</u>. This has been recognised by many writers, including C.S. Lewis, whose 1949 essay on "The Abolition of Man" remains one of the most perceptive treatments of the problem. At a more popular and accessible level there are a number of sources which are suitable for school use and teacher education.[19] These illuminate in a concrete manner some of the possible consequences of existing tendencies toward de-humanisation that were discussed above. They represent one way of coming to grips with the occlusion of human interests, as conceptualised by Habermas and others (see above), which was also described as a central problem of the age. If such a view is upheld, then school curricula can begin to sensitise students to these processes. Again, speculative literature can be of great use here.

The body of work dealing with possibilities in this area is too immense to be summarised here.[20] But teachers wishing to deal with some of the themes mentioned above can utilise the reference books which are available. For example, Ash's "Face of the Future" (1975), Isaacs' Siscon (Science in a Social Context) guide, "Darwin to Double Helix: The Biological Theme in Science Fiction", (1977) and Nicolls' "Encyclopedia of Science

Figure 7: Futures Wheel

Some Negative Consequences of Doubling the Human Life Span



KEY

Upper case, underlined = primary assumption.
Upper case = first order consequences.
Lower case = second and third order consequences.

Fiction" (1979). The latter is of particular value since it lists entries not merely by authors but by themes, some of which deal specifically with biomedical issues.[21] As suggested above (and particularly in 3.2.1) these literary visions of aspects of possible futures can do more to illuminate the social and human implications of technical innovations than many more academic texts which can, by comparison, seem difficult and obscure. There are, however, also other pedagogic tools derived from futures research which can deepen students' understandings.

One technique that is widely used in the U.S.A. is the futures wheel (or web). This helps to expose some of the implications of specific trends of extrapolations, and to show up "generation effects" (ie what may happen first, what may then follow, etc.) The exercise begins with a major trend, change or innovation at the centre. First order (ie. immediate effects) that are worked out first, followed by second, third, and so on. To develop patterns of causation in this way is to make ideas and relationships more explicit, and thus accessible to examination. The ambiguities that are sometimes revealed may reflect ambiguities in the real world, and these may be examined by "re-running" the wheel according to different assumptions. American experience has shown that futures wheels may be used with pupils of any age. With young children, the teacher can elicit verbal responses and write these down. With older pupils, they can be mounted upon a convenient wall and elaborated at will over a week or so.

Senior pupils can add various refinements (such as identifying "barriers" or "bridges", weighting assumptions or running successive models on a computer).[22] Clearly, the futures wheel is a very useful and flexible tool that can assist pupils to structure their thinking about the future and to make assumptions explicit. Some indication of this can be seen in Figure 6, where some implications of a doubling of the human life span are set out. Clearly the wheel is not intended as a forecast, but rather as an 'idea map' which can make futures potentials more meaningful, more accessible to exploration, analysis and understanding.

As noted above, there are many other such tools. These include trend extrapolations, cross-impact matrices, relevance trees, scenarios, Delphic surveys, gaming and simulations. Examples of these, and of their educational uses, may be found in the works cited.[23] One simulation is called the "Immortality Game". It allows students to approach issues by taking on roles and dealing with problems according to the rules and assumptions of the game. By its nature it elicits creative responses, and permits 'rehearsals' of real-life problems and conflicts.

This discussion of how environmental and biomedical change can be approached in the classroom has necessarily been brief. Nor has it yet been suggested how such concerns can be integrated into the overall curriculum structure. But the sheer practicality of the enterprise of the existence of suitable materials and techniques is not in doubt.

Developing Future-Focused Competencies

Coming to grips with macro-change processes could have been considered under the above heading. It was, however, convenient to deal with it separately in part because the recognition of change legitimates human interests in the future, and in part because the foregoing helps to establish the practicality of a future-focused approach to the secondary curriculum. It is now appropriate, on this basis, to consider some of the competencies which such an approach may seek to foster. But again, the literature on this subject is so extensive that attention is restricted here to four key areas.[24] Similarly, the parallels, and areas of common interest, between a futures approach and other concerns (eg social education, ethics, computing) cannot be pursued here since this is a furthr research task in its own right. The four areas are as follows,

1. Forecasting and Anticipation.
2. Developing Value Commitments.
3. Information-Handling Skills.
4. Managing Uncertainty.

Following a brief discussion of each of these, this study turns to the question of innovation, to the problems and potentials associated with a critical futures approach to curriculum renewal.

Forecasting and Anticipation

One of the aims set out above was to help students to develop "anticipatory conciousness".[25] This can be understood as the ability to distinguish between possible, probable and preferable futures. It draws upon the natural ability of human beings to anticipate (see 3.1) which can be refined and extended by the concepts, tools and techniques of the futures field.

Possible futures refer to the virtually infinite number of future states that are theoretically achievable. To begin to develop an imaginative grasp of this unbounded range of potentials would be an impossible task were it not for the concepts, methodologies and other resources of the futures field, which have been referred to above. An attempt has been made to show that many of these – stories, FPLs, gaming, futures wheels – can be successfully adapted and deployed in the classroom to develop students' anticipatory skills. Penny Damlo has found the writing and analysis of scenarios "exceptionally useful" in schools. (See note 17.) These permit past societal "constants" and future alternatives to be treated systematically. Furthermore, the analysis of scenarios and forecasts derived from different sources can reveal sectional interests and conflicts regarding the validity of images or assumptions about aspects of the future. (eg road traffic forecasts, estimates of electricity demand, population projections). An understanding of such conflicts is important in demonstrating how certain images of, and approaches to, the future may achieve dominance, and how the latter may sometimes be questioned. Damlo's outline of four "Paradigms of the Future" helps to identify some of the assumptions that may be associated with a particular view. While "ideal types"

clearly have limitations, they can assist students in recognising basic approached to scenario construction and forecasting.

Fore-casting literally means to cast one's mind ahead, to anticipate, in a systematic way, to elaborate futures potentials. This can be viewed as a central pedagogic task: one that lends greater meaning to the present and opens out the future as a field of genuine human concern. It is not to be confused with prediction which, it was suggested, is a hazardous occupation unrelated to pedagogic tasks. However, it is useful to select from the wide range of possible futures, those that seem probable, and have a reasonable chance of occurring. This conveys a sense of the overall context, of the processes and trends that shape, and are shaped in turn, by individual and collective existence. To some extent this process of coming to grips with probable futures involves and depends upon a familiarity with macro-changes discussed above. But it also implies a recognition of historically-grounded structures, patterns and meanings. (Eg language, music, the state, the family, values.) Thus, in a critical futures view, probable futures are mediated by continuity and change. Therefore, it is not enough to identify futures that seem to arise autonomously from the past and present. Rather, armed with a developed sense of alternatives, futures which seem altogether too likely can be problematised, their inevitability challenged and processes identified which may lead to their falsification.[26] Equally, futures that could command wide support may become self-fulfilling,

In the British context, the elaboration and problematisation of possible and probable futures may appear to be difficult pedagogic task. But the existence of exemplars (such as the Montclair futures school), of extensive literature (particularly that dealing with educational futures and world futures) and a variety of simple, but as yet little-used, tools and techniques, suggests that such an enterprise is far from impossible. Rather, if secondary curricula are regarded as instruments of cultural adaptation, then the tasks implied by a futures approach appear timely and appropriate in a period of cultural transition.

Developing Value Commitments

A consideration of possible and probable futures leads on to developing views of preferable factors. That is, those that are felt to be desirable in relation to some criteria of value. However, a major difficulty is that there is little agreement about such criteria in an increasingly pluralistic society. Neither do we have widely-shared images of desirable futures. Instead there are numerous pessimistic images of the future, and attempts to respond to present and future threats, when based on narrow sectional views, may obscure the commonalities of interest noted in the previous chapter. Yet it is through these very commonalities, through a sense of shared tasks and responsibilities, that a measure of agreement may be reached.[22] Hence, while few retain any belief in the possibility of Utopia, significant value shifts are occurring which could prefigure a cultural re-orientation toward sustainable futures.[27]

It must be doubted if there is any single 'correct' way to approach values in a futures context.[28] However, four approaches, or concerns, are evident in the literature. They

cannot be considered in detail, but are undoubtedly important. Under-researched as they appear to be in Britain, they will require further attention. Several writers emphasise the importance of helping pupils to develop and clarify their own values. This is problematic in so far as the teacher is regarded as an infallible authority. But when he or she takes the role of counsellor, facilitator and guide, it is possible to promote a dialogue through which pupils can develop greater critical insight and automony.[29,30] Kirschenbaum and Simon identify several "valuing processes" (involving "prizing, choosing and acting") which they regard as important in preparing pupils "to meet the unknown challenges of the future."[31] Fitch and Svengalis outline several techniques for analysing values in relation to social and technical developments, options for the future, and the nature of rational choice, decision-making, value change and conflict.[32] These blend into a second concern: that of assessing prevailing social values. This is clearly an area where futures approaches can draw upon other fields (eg social studies, politics, current affairs) and perhaps extend their areas of interest in new ways. For example, it would be of no small interest to students to consider why "unemployment" still bears a negative connotation, and in what other ways "being without a job" could be valued and conceptualised.[33] Again, the impact of new technologies on social values has been touched on above, and this could be explored via some of the contemporary case studies mentioned there. Beyond this, an analysis of which contemporary values are under stress, and major factors involved, would seem entirely appropriate.

The exploration of possible future values represents a field of study in its own right. For example, there is the question, examined at some length by Fowles, as to the extent which present actions informed by existing values represented impositions or restrictions upon the future.[34] Again, one could consider values that might arise as a result of new problems and conditions. These may be suggested by futures research techniques such as the futures wheel presented above. In this example, the advent of life-extension technologies suggested that there could be demands for greater social control over human fertility and changes in the status of the elderly. Numerous other shifts are revealed through trend extrapolation and speculative literature (chapter 3.2.1). These may be used as starting points in futures study or as examples demonstrating the transience of the present, the need to see the latter both in terms of its origins and potentials.

Perhaps the most interesting issues in the context of the present work is the identification of discrepancies between individual, social and future values. For it is here that contradictions, tensions and areas of dissonance may be revealed that, as was observed above, can stimulate active involvement in seeking resolutions to problems. For example, students who face the prospect of a jobless and uncertain future may well find it useful to examine the conflicts between their own needs as individuals and the values inherent in a market-oriented, consumer economy which holds out the promise of material reward and gratification but systematically denies their fulfilment to many.[35] Again, as students begin to develop a sense of the implications of futures potentials, many areas of value conflict will be revealed. This is particularly likely during a period of cultural transition when earlier forms of life and understandings are breaking down and others are still fluid and emergent. It has been suggested that it is precisely here in the fractures and disjunctures of contemporary life that pedagogic attention needs to be concentrated. But achieving a

sense of stability-in-charge seems also to depend on viewing the present in the broader temporal context describe above. In part, this may involve the examination of values that are implied by present and foreseeable changes. For example students may wish to question the inevitability of nuclear weapons proliferation, anti-natal regulations, disparities in wealth, the commercialisation of human needs. But the critique of imputed pathologies can also accompanied by consideration of emergent values and commitments (such as those noted at the end of the previous chapter).

There are many ways of coming to grips with these questions in the classroom. For example, as noted above, technical developments can be assessed to their positive and negative implications. Conceptions of personal futures can be compared with a future problem landscape to expose discrepancies. Values may be "tested" or "rehearsed" in a structured, role-taking, game-playing situation or more informally in small groups. The exercise of declaring a value commitment and defending it to peers has proved to be successful with older students in a comprehensive school in Britain's North West.[36]

Information-Handling Skills

The skills of handling information should be seen within a wider context of 'ways of knowing and perceiving'. For there is always a real danger that the former will obscure the need to broaden and deepen the human conversation in other dimensions (eg the pursuit of wisdom, the evolution of consciousness).[37] But the temptation to debate these matters here must be resisted. Clearly information contributes to knowledge, and as the information environment becomes more intensive and complex, spreading into new areas of culture and society, so notions of basic skills will alter. Finding, assessing and manipulating information will certainly figure among these.

As the sheer quantity of information increases it will be increasingly necessary to know how to locate specific material. This implies that a broad grasp of access routes and mechanisms will be needed. These are too numerous to mention here, but range from existing library indexes and abstracting services to various forms of software and data bases. Full utilisation of the more sophisticated systems may well require special training or authorisation. Questions of confidentiality, of access to personal information, data protection and computer fraud would also need to be covered along with wider, social implications of a "wired society."[38]

Once data has been located, it must be assessed for quality, reliability and bias.To some extent this may be a matter of extending the traditional concern for critical thought. But in an information-rich environment it will also be increasingly necessary to understand how data is generated, shaped and modified before it is presented to the user since distortions and simplifications can occur at each stage. One way to demonstrate this in the classroom is to draw on the technique of media studies and, for example, examine how a single item of news may also be related to the 'fit' between the purposes of those responsible for producing it and subsequent users. Again, the dynamics of a "wired society' will become a subject of study in its own right, and understanding the

directionality, intensity, uses and applications of data flows will help older students to grasp what is happening around them.[39]

Until voice-activated computers are perfected, students using computers will continue to need keyboard skills, and hence leaning to type will probably be considered a basic skill for some time to come. Equally, simple programming may become standard as the hardware becomes cheaper and as software becomes more sophisticated and 'user friendly' (ie easier to use). It has already been noted that new forms of curriculum will arise in parallel with these developments.

Given the range of media and information tools, the large amounts of information available and the speed with which material becomes dated, some observers have written of the possible of 'information overload'. For example, Toffler describes some of the avoidance strategies used to cope with what he calls "overchoice".[40] More positively, students can be encouraged to develop strategies of selection that can filter out, or regularise, stimuli. These may include effective goal-setting, learning to select priorities, utilising information brokers and answering services. As in previous examples, practice in their use can be provided via role-playing, gaming and simulations.[41]

Managing Uncertainty

This study has stressed that the future is inherently uncertain, and that this, broadly speaking, is beneficial. It is this 'openness' which sanctions human interests in studying alternatives and in exerting individual and collective will toward desired ends. Thus, the often under-rated powers of anticipation, the broad span of the futures field, planning, forecasting and futures education itself – all these represent ways of dealing with future uncertainty. They may be said to 'illuminate the present', providing ways for people to 'maintain their bearings' during a period of transformation and change.[42]

But it is not merely the future that is uncertain. As noted the past and present are also permeated by uncertainty. (See chapters 3.1.1 and 3.1.2.) The greater part of history has passed unrecorded and is subject to continuous debate and re-interpretation. The present is also problematic in so far as we may only possess a small fraction of available knowledge.[43] One way out of this dilemma, albeit an abstract one, is via philosophical analysis.[44] In more accessible terms, it is valuable to understand present reality as bound up with, and part of, a long-term 'conversation' between the generations, past, present and future.[45]

Thus Wooddell's suggestion that future uncertainty implies a curriculum emphasis upon flexibility, general skills (to meet a variety of situations), creativity and holism[46] needs to be seen in the wider context provided by a critical approach to futures study. It was suggested above that the latter is concerned to analyse the breakdown of inherited meanings, develop reconceptualisations of the present and negotiate emergent understandings.[47] Elise Boulding's concept of the 200-year present was used to illustrate how this process of continuous change could be represented in a time-frame that can be grasped by everyone through their relationships with the recent past and near-term future.

In this view, uncertainty remains ever present, but is 'managed' by the critical assessment of culture and tradition, and the elaboration of futures potentials. Hence, it is through the coupling of culture analysis with the study of alternative futures that the crippling 'double lag' characteristic of secondary curricula may finally be overcome and resolved.[48] In this way too students can be encouraged to utilise uncertainty; to see it as providing an opportunity to exert their future-shaping powers.

To view uncertainty in this way is to stress the value of the concepts, tools and techniques discussed above: environmental monitoring, scenario analysis, futures wheels, speculative literature, FPLs and so on. The deep insight into significant issues which emerges from their use, of involvement in wider long-term processes, serves to overcome temporal provincialism and illuminate problems to be faced, tasks to be undertaken.[49] But, since macro-change processes are poorly understood, a crusading attitude is wholly inappropriate. In the present perspective, the essential pedagogical task is to help students to develop and apply their skills in pursuit of sustainable futures, not to legislate or constrain their use.

The fact that there are limits upon human understanding does not constitute sufficient grounds for failing to prepare individuals explicitly for participating in shaping the future. It does, however, suggest that tolerance for ambiguity is as important as critical thinking. In developing both we must reiterate that, since prescriptions for action rest upon particular frameworks of understanding, analysis and interest, they are best regarded as interpretive and provincial.[50] This can be illustrated in the classroom by critical studies of contrasting scenarios,[51] or by examining the assumptions embedded in various "paradigms of the future'.[52] These permit various interpretations, interests and tendencies to be identified and subjected to critical scrutiny. In this way students can come to grips with the provisionally of the future and begin to penetrate the taken-for-grantedness of prevailing images and assumptions.

These, then, are some of the ways that futures themes can begin to find substance in curriculum thought and practice. Yet since the latter remains structured and, some would say, dominated, by other concerns, the question of innovation must now be addressed.

2. Innovation Problems and Potentials

As noted above, attempts at innovation require much more than statements about aims and objectives. They also need resources, support, time and people who are committed to seeing them through. Yet none of these will be forthcoming without a shared vision or understanding of what is proposed: of benefits to be gained, advances to be made. Thus, while remembering that this work is not proposing an innovation per se (but rather a perspective from which many innovations could flow), it is useful to summarise at this point some of the major ways that critical futures study can contribute to curriculum renewal. It is now time to draw upon the general implications (discussed in chapter 4.2.1) and re-formulate them in the following way.

1. Critical futures study provides a rationale for re-thinking the structure, content and purposes embodied in existing curricula and for linking the latter more systematically to regularities and changes in culture and the wider world.

2. It stresses the need to engage consciously in the process of mediating between inherited understandings, the interpretation of the experienced world and the assessment of futures potentials. In so doing it provides an infusion of concepts, ideas, metaphors and methodologies into the curriculum field, opening out new possibilities and contributing to the essentially political process of re-defining and up-dating the curriculum.

3. It suggests strategies for resolving lags generated by earlier notions of curriculum, thereby making futures potentials accessible to exploration even by the very young.

4. It provides the outlines of an approach through which pupils can learn about, assess and locate themselves in an evolving pattern of change processes and global issues that constitute the culturally mediated background or framework of collective and individual experience.

5. It seeks to stimulate active responses to fundamental problems, to contribute toward a global, long-term sensibility and, in so doing, suggests a more empowered notion of citizenship.

6. Finally it embodies and elaborates an ethic of future-responsiveness consequent upon the emergence of powerful new technical capacities and the possible occlusion of human interests and prospects.

Clearly, these suggestions need to be examined, re-formulated and put to work in concrete situations. It is only by being rendered into practice that their potential can be fully explored. In the present context they serve to identify and broaden an area of discourse which has been neglected, but which, it has been suggested, is central to the understanding of curriculum tasks. If this view becomes more widely accepted, it may help provide the impetus needed for a re-direction of professional energies and a comprehensive strategy of innovation. However, we must resist the temptation to see critical futures study as offering answers to all educational problems. As noted above, different theoretical perspectives reveal some possibilities even as they obscure others. Thus this study has not directly pursued many traditional curriculum questions.[1] Rather, it has suggested that, while a critical futures perspective appears to be a sine qua non of curriculum renewal, it needs to be considered in the wider context of other interests and approaches. Similarly, should be recognised that curriculum proposals always carry with them assumptions and bodies of theory which remain implicit and under-stated, particularly in the early, formative, stages.[2] Thus, while this work has tried to indicate the origins of the concepts and theories it has utilised, and to assess them critically, the full implications will only emerge through dialogue, criticism and the accumulation of practical knowledge and experience. Hence it is not useful here to offer detailed

curriculum proposals.[3] Instead this study is completed by considering some of the major problems to be faced and some implications of three approaches to futures education.

Existing secondary curricula are, as noted (chapter 1.1.3), largely structured around traditional subjects. The question as to whether or not "futures" is a subject will undoubtedly be debated at length. In the view taken here it is not (being better understood as a metaperspective), but may be treated as such.[4] Interpreted in a 'strong' sense, some conflict with subjects and subject-based curricula does appear likely. (See below.) To the extent, however, that futures approaches can incorporate a critical view of knowledge as being open and provisional it may seek to focus debate more fruitfully on pedagogic criteria for assessing competing knowledge claims.[5] Again, most observers agree that the outcomes of existing futures programs cannot be assessed by examinations.[6] Instead process-oriented techniques are recommended in which "evaluation is on-going …part of teaching/learning".[7] If Stenhouse is correct that "the process model is essentially a critical model, not a marking model…(which) can never be directed towards an examination as an objective without loss of quality….", then there is clearly a conflict between futures curricula and the prevailing system of examinations.[8] So long as the 'worth' of curricular elements is judged according to how readily they may be examined, this will act as a constraint on non-traditional innovations of all kinds. Clearly, futures initiatives will need to grapple with this issue if these are to be more than low status options.

Other problems are associated with the fact that, since teachers bear the major burdens of innovation, it is important to be alert to the demands that futures curricula could make upon them. These may involve changes in authority structures, roles, routines, subject identity and approaches to knowledge and culture.[9] As Skilbeck notes, the demands seem severe. He writes,

> in reconstructionist theory (the teacher's) job is not merely to spread other people's ideas but to undertake, in the school, critical appraisals of the major attributes of modern cultures, and to work with other groups in society for the renewal of that culture. Thus his or her role is critical and creative, and not that of a transmitter of knowledge. This is both the challenge and the weakness of reconstructionism….do teachers have the skills, the desire, the remit, the resources that are needed to carry out such a role?[10]

These are crucial questions and it would be easy to answer them in the negative. They can, however, be taken to indicate a number of important tasks: the need to develop concepts of professionalism that are congruent with such a role, to insist on more adequate, recurrent training opportunities and to generate public and political support for a more generously resourced educational system.[11] Neither is it wise to underrate teachers' innovative capabilities. It will be recalled that, in the case of the Montclair futures school, it was shown that with the benefit of proper leadership and support, teachers were able to design and implement an ambitious program of futures education in a matter of weeks.[12] While this may fall short of a thorough-going reconstructionist model it is suggestive of what can be achieved in this field.

It is, of course, true that in England and Wales post-war expansion, re-organisation and contraction have imposed great strains upon teachers. But it has been suggested here that these internal changes have neither matched, nor been informed by a recognition of, deep-seated changes in the world beyond the classroom.[13] This is partly why this work proposed that futures curricula should stand in a dynamic, transformational relationship with the wider culture and world. But such a relationship is not easily achieved. Where people have come to regard continuity in static terms, it may even appear threatening. Schon describes very clearly what is involved. He writes,

> social systems provide for their members not only sources of livelihood, protection against outside threat and the promise of economic security, but a framework of theory, values and related technology which enables individuals to make sense of their lives. Threats to the social system threaten this framework. (Thus)….a social system does not move smoothly from one state of its culture to another…Something old must come apart in order for something new to come together. But for individuals within the system, there is no clear grasp of the next stable state – only a clear picture of the one to be lost. Hence the coming apart carries uncertainty and anguish since it puts at risk the basis for self-identity that the system had provided.[14]

Here Schon identifies the central dilemma facing those whose self-identity is founded on "theory, values and related technology" of the past. If, as some critics of the curriculum have suggested, these have changed little in many years;[15] if the self-identity of the teaching profession is founded on dated conceptions of roles, subjects, purposes; and if it has been unable to come to grips with the forward-looking dimensions of pedagogy, then it is unsurprising if "uncertainty and anguish" are commonly experienced. But a critical futures approach suggests that <u>stability and certain measure of security may be derived from a conscious and dynamic mediation of past, present and future</u>. Hence, what is at stake is <u>the basis of teachers' self-understanding</u>. Attention therefore needs to be focussed on the ways that these have been defined and maintained even as the structures of industrialism, within which they evolved, have disintegrated.[16] This represents a major research problem in its own right. A promising line of enquiry may arise from the identification of teachers' dissatisfactions and the interpretation of these through the kind of critical and future-oriented perspective developed here.[17]

Clearly, the intending innovator should be aware that he or she is not merely recommending changes in external routines but seeking to influence peoples' sense of identity and purpose, and further, that changes on these levels are neither straight-forward or lacking in personal cost.[18] Similarly, the innovator cannot assume that his or her insights or prescriptions can affect 'logics in use' which are sanctioned by tradition.[19] This, in part, is why critical futures study lays stress on dialogue, negotiation and, in a curriculum context, the need for some kind of infrastructure to support them.[20] Before discussing this further, it is useful to distinguish three broad approaches to futures education.

The question of how futures approaches relate to the overall structure of the secondary curriculum cannot be separated from how the former are conceived and implemented. This is partly why the above discussion of core curricula has not yet been continued. Similarly, problems of innovation in this area may be linked with difficulties that are inherent in any proposal (eg the number of changes implied within schools). It is therefore useful to consider three possible approaches to futures education. These may be labelled the additive, infusion and structuring approaches.

It is significant that both in Britain and the U.S.A., the innovation process began with the formulation and teaching of isolated courses or units (or parts of these) in futures, primarily by "self-motivated individuals".[21] While Britain is perhaps some 15 to 20 years behind in this area, the same pattern is being repeated here. In the absence of associations, institutions or other forms of support, teachers who are alert to changes taking place around them begin to gather futures-related material and ideas which are either added to existing syllabi or incorporated into options which are somehow 'squeezed into' the existing curriculum.[22] While there are too few British examples to provide a clear picture, it seems that in this country, when futures enter the curriculum it is either by way of a futures-related field such as world studies,[23] by inclusion in various arts subjects,[24] or via general studies.[25] It less commonly forms a separate course in its own right – as at Pocklington school in Yorkshire.[26] (Undoubtedly many such 'grass roots' innovations go unrecorded, and this study has stressed the need to survey what has already taken place in this field.)

Innovations of this type may be called <u>additive</u> because they become assimilated into an existing structure wherein their transforming potential can be contained or defused, as it were, with few side effects on the curriculum as a whole Thus, by posing no significant threats to traditional subjects, practices and the self-understandings embodied in these, the additive approach is the simplest, and one that can be accomplished without major conflicts of power or interest. Yet, by the same token, it may become simply another curriculum category (albeit a minor one), an option that lacks academic validation and which may therefore fail to thrive in a context of resource constraint and retrenchment. However, this is not to suggest that innovations of this kind do not have their place. In fact they can be regarded as a "necessary first step" in a wider strategy.[27]

<u>The infusion approach</u> involves developing the forward-looking dimensions of existing subjects throughout the curriculum. Thus, for example, geography teachers may consider possible future developments in land use, techniques of farming, the urban infrastructure, new types of settlements.[28] Science specialists can draw on the range of science, technology and society (STS) materials available to present a more incisive view of science. In conjunction with teachers from the humanities, the present and future implications of science and technology can be explored and, in some contexts, perhaps given an importance which equals that accorded to the mastery of scientific principles.[29] Clearly this approach has greater potential, and examples of this kind could be multiplied indefinitely.

The infusion approach appears to be favoured by many American futurist educators.[30] It is more ambitious than the additive approach and calls for a higher level of consensus within the school, cooperation, leadership, openness to new ideas, staff development and adequate resources. That these cannot be lightly assumed even in the American context was confirmed by a survey of futures courses there. Of the schools utilising a single approach "only 14.5% preferred the infusion approach".[21] However, American experience also suggests that, once instituted, such programs can contribute significantly to curriculum renewal and institutional development.[32]

No similar information is available for England and Wales, but the infusion approach clearly represents a challenging option for British schools. Apart from the factors mentioned above, any attempt to develop such a program would not need to be informed by a clear vision of what was being attempted, coupled with an assessment of overseas exemplars and the experience of comparable, broadly-based innovations in this country.[33] While the difficulties involved should not be underestimated, schools that begin to move in this direction are likely to discover new possibilities for curriculum integration and renewal.[34] Furthermore, their example would be suggestive for others and would certainly provide invaluable case studies for research. Yet it should not be overlooked that the additive and infusion approaches may not be able to significantly affect the status quo. They represent relatively weak conception of futures education and it is far from certain that they could embody the critical and emancipatory concerns discussed above.

The structuring approach is the one most congruent with the view developed here. It proposes that the themes, concepts and concerns of critical futures be brought to bear on the re-structuring of secondary curricula. This need not imply that traditional subjects and practices should be swept aside, even were it possible.[35] Rather, on one level it is to initiate a process of mutual self-reflection between critical futures study and the theory and practice of curriculum. That is, indeed, one purpose of this study, (though the full consequences of such a process cannot be foreseen). On a more practical level the concept of a future-oriented culture map is of central importance. As noted, this draws on existing proposals but extends them to explicitly include the futures dimension. Thus major emphasis would be placed on the issues, processes and competencies discussed above. This would permit pupils to come to grips with some of the central questions associated with individual, social and cultural adaptation and renewal.[36] To view the latter as major educational concerns is to move decisively toward a more active, interventionist role for schools and teachers, and away from the confines of the narrow, examination-oriented, cognitive/intellectual curriculum. It is to take the view that if secondary curricula are to fulfil more constructive social purposes then they must begin to be prospective and critical in structure and outlook.

The implications of such an approach will need to be carefully worked out with practitioners and other interest groups. They will certainly entail changes in existing structures, practices, purposes and self-understandings. It is therefore likely that, in the absence of a comprehensive strategy of innovation, the structuring approach may not be widely implemented in the near future. Hence these proposals stand as an invitation to dialogue and debate, and as a projective or model of what may be attempted as

circumstances change.[37] (See conclusion.) As such they serve to stimulate criticism and, where possible, practical experimentation. If Elise Boulding and others are correct, it is from the stock of such images that innovative solutions to problems may be found.[38]

In reality, some combination of these approaches will probably be attempted. If the demand for future-focused curriculum elements continues to grow, more schools will begin to add modules, units and even courses to their existing programs. More ambitious approaches will be attempted where schools can attract the necessary resources, achieve some degree of internal re-organisation and resolve the demands or requirements of outside interest groups.[39] Those which attempt to develop and implement a 'strong', culture-critical, structuring approach will need to come to grips with the present system of examinations and their 'overdetermining' influence upon the curriculum. (As noted above, this was a criticism made by HMI.)[40] It is also likely that the initial viability of such an approach would be affected by the outcome of proposals to re-think or defer 16-plus examinations.[41] But this question lies outside the scope of the present study.

The development of future-oriented curricula will be affected by moves toward a core curriculum. In the additive approach, future study could be regarded as a peripheral option. However, the infusion and structuring approaches suggest that the core itself could be re-interpreted through a critical futures frame. In the former case, existing proposals could simply be extended to include futures concepts and themes.[42] In a thorough-going structuring approach the entire core could be re-fashioned via the kind of future-focused culture map discussed above.[43] This could leave much of the existing curriculum intact, but re-organised into options outside of the core. Clearly questions of academic status will arise, but a core based on culture analysis and the critical assessment of futures potentials coheres well with a process view of curriculum, and the latter may be essential in a period of transformation and change.[44]

This study has tried to show that these approaches can be rendered into practical curriculum terms. Yet it is clear that innovations in this area will take time, effort and the development of a supporting infrastructure. A first step may be the development of a community of enquirers able to develop proposals and negotiate them with others. Such a community may seek a base in a university, independent school or college, subject association or other group.[45] It may require the formation of a specific association devoted to futures education. This could facilitate the coordination of effort, communication between interested parties, basic research and the production of sample syllabi and trial materials.[46] Such an association would itself constitute a form of legitimation: a declaration that a specific set of interests and concerns were compelling enough to bring people together in a common endeavour.

The institutionalisation of innovations in this area may appear difficult in a context of continuing resource constraint. But this must be set against a view of which tasks are appropriate for schools to pursue in the closing decades of the twentieth century and beyond. In the view set out here a primary task is that of preparing students to penetrate the 'givenness' of inherited structures and meanings, and further, to participate in cultural adaptation and renewal. Such a view is sanctioned by the decline of industrialism as a

way of life, by continuing rapid change and the emergence of new dimensions of hazard and uncertainty.[47] It is also one that is informed by a sense of ambiguity of technological developments.[48] If these are to be harnessed towards creative, emancipatory ends, schools will need to look to 'the future' and to develop their latent potentials as learning organisations. Sensitive to changes in the environment and scanning aspects of the 'common world' which have heretofore been passed over, they can seek a more responsive and dynamic cultural role.[49]

In this view curriculum renewal is a permanent and continuing process in which there are no plans or blueprints of enduring value, no unambiguous list of aims and objectives, no problems which admit of final solutions. Such a view stands in contrast with the manipulative certainties that characterise aspects of a technological society. It recognises that

> in the dynamics of dissipative biological, sociobiological and sociocultural processes….there are no problems which may be solved once and for all. There is only a dynamic, evolving problematique….which appears at many levels in different and changing aspects….A valid approach to understand this is to pose questions at as many levels as possible. An answer is not an end, it does not solve anything. To pose questions at ever-new levels of discourse corresponds to an opening up of consciousness towards a multilevel reality.[50]

Conclusion: Schooling, Education and the Creation of the Future

This work has attempted to develop a view that explicitly links curriculum renewal with the present cultural transition and its future prospects. While many aspects of such a view call for elaboration, refinement and revision, it has been suggested that education in general, and secondary curricula in particular, need to be founded on a broader, long-term and culture-critical perspective.

Earlier forms of life and culture have lost much of their cohesion, meanings have become problematic and quite new hazards lie ahead. As one writer puts it, "formerly the future was simply given to us; now it must be achieved".[1] Since human beings now possess the capacity to destroy life as it is currently known, the future may no longer be assumed. Rather, it may be secured only by the common pursuit of shared ends and the collective defence of certain fundamental interests.[2] Thus a 'central project' of the emerging post-industrial society is that of communicating and working with others to create sustainable futures.[3]

In such a view, schools need to overcome the rigidities of an earlier age and develop their potential as agencies of cultural change and adaptation. This can only occur if their frames of reference are expanded to include aspects of the common world which remain largely implicit and unexplored. As Schell notes,

> our mortal lives are sustained and given meaning by the broad stream of life …. Being human, we have, through the establishment of a common world, taken up residence in the enlarged space of past, present and future…..If we threaten to destroy the future generations we harm ourselves, for the threat we pose to them is carried back to us through the channels of the common world that we all inhabit together. [4]

Hence, we are all involved in what Burke called the 'partnership of generations'. It is a view that complements the hermeneutic concept of 'inter-generational dialogue' in which one generation 'converses' with others through cultural and symbolic forms.[5] But the progressive occlusion of the future threatens to undermine all human activities which assume it: planning, building, teaching and procreation itself. [6] It also "disturbs our relationship with the past generations (for) the present is a fulcrum on which the future and the past lie balanced, and if the future is lost to us, then the past must fall away too."[7]

This, then, is one way of understanding our common predicament: that we have lost our bearings in the present because past and future have become unreal. It is a dilemma that lies at the root of our existential uncertainty and confounds attempts to "educate for the future". Yet by engaging in 'conversations' with the past <u>and</u> future, coming to grips with major problem issues and breakdowns of meaning elaborating futures potentials and

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negotiating emergent meanings – in such ways a critical futures approach seeks to enhance human agency in the present and affirm the wider, common world. It permits a reflective monitoring of human culture over a broad spatial/temporal span, allowing significant mis-matches, dissonances and breakdowns to be identified, while yet seeking to maintain cultural continuity through evolution and directed change.

From such a perspective it has been argued that new possibilities arise for curriculum renewal, and more specifically, for linking curriculum change with the world problematique, the interwoven complex of cultural themes and problems which frame human lives at the global level. It was also suggested that futures thinking is a necessary component of any defensible notion of pedagogy. In this regard we might come to see critical futures study not simply as a means of revising spatial and temporal referents within the educational process, nor as a source of organising principles and content, but rather as a constituent part or discipline of education itself. In this way futures thinking could be 'built in at the base', as it were. That is, as a primary consideration affecting all educational programs and processes, but particularly teacher preparation and support. This represents a promising approach to resolving some of the major constraints that prevent teachers from regarding themselves as critical mediators of culture, and not mere reproducers of cultural "snippets and fragments".

Without developments of this kind it is difficult to see how the innovative capacities of students can be developed and applied to cultural tasks.[8] Certainly the 'steering capacity' available to governments appears increasingly problematic given increasing social complexity and continuing rapid change. Policy and planning lags now seem unavoidable in large bureaucracies, and the latter are often the last to recognise cultural innovations.[9] It is partly for this reason that greater citizen participation in social decision-making has been advocated. While this can create certain procedural difficulties, it must be doubted if democratic government is now possible without it.[10] Thus a critical and reflexive grounding in the competencies and areas indicated are essential preparation for the exercise of informed citizenship. This, in turn, is a prerequisite for the resolution of global problems.[11]

It should not, however, be overlooked that some observers have noted profound conflicts between futures education and more traditional approaches. In Wooddell's view, these derive from differing conceptions of 'the future', from differences in goals, purposes, 'operational settings' and methods. He concludes that it is "unfortunate that futures education finds itself limited to those institutions with which it has so little in common."[12] Yet such a view may rest, to some extent, upon the relatively weak conceptions of futures study and futures education that have prevailed in the United States. From the critical perspective developed here a more influential, transforming role for futures thinking can be identified that, far from being limited by present institutions, may help to change them in numerous ways. Equally, however, the distance between potential and actuality is considerable. Implementing a 'strong' conception of futures education is neither an easy, nor a short-term, task, and 'weaker' conceptions may readily become assimilated into existing, past-oriented structures. Should this occur, then the implications would be far-reaching.

It is a commonplace that much education takes place outside formal institutions designated for that purpose. But Erikson has noted a movement in the USA towards a proliferation of educational activities in the non-school sector. He suggests that this is partly a consequence of changing social roles and expectations (eg paid educational leave, life-long rights to education) and also of business and technological developments. More businesses are organising their own educational facilities, and the rapid growth of home computing is making many school-based learning activities available elsewhere. He concludes that,

> a new, two-tiered educational system appears to be coming into existence: a slowly growing or stagnating conventional school sector, and a fast-growing, dynamic, non-school sector driven by new technologies, new perceptions of social needs and entrepreneurial enterprise.[13]

If this picture is correct it may prefigure similar developments in Britain. Indeed, it is possible that the formal, state sector, with its diffuse systems of control, its dwindling capacity for innovation and its 'rootedness' in the past, may already be courting decline. Some parents have started to exercise their right to educate their children at home.[14] Again, a similar "massive home-based education market" is envisaged by many of those involved in computing.[15] The two trends may well reinforce each other. If these are accompanied by a further diffusion of educational services and functions outside the schools the formal sector may become the least progressive element of a much more diverse network. Thus, de-schooling could occur in an uncontrolled, de facto manner. Indeed, further technical developments can already be envisaged that would fundamentally alter the nature of learning and call into question the very existence of schools as separate institutions.

But such developments would be regrettable. They would encourage further cultural fragmentation and breakdown. There is evidence that communications technologies may assist this process by permitting individuals and groups to communicate preferentially with selected 'others', creating a social vacuum and encouraging the development of 'garrison societies' of the kind satirised by E.M. Forster and others.[16] The actual consequences of such a decline in social solidarity are impossible to predict. But the school as an institution, for all its many failings, can be regarded as an important integrating force in an otherwise disintegrating society. This is one reason why core curricula have such a crucial role to play.[17] It can therefore be concluded that if schools are to maintain – let alone improve - their social standing, they will need to begin to take the practical and visionary leaps and risks that would make them more responsive to the tasks discussed here.

Such developments should be informed by the realisation that any activity that is termed 'educative' must, at some point, draw upon the past and the future. To be alive and to aspire to full consciousness is to understand that we are all, and always, embedded in our pasts and yet open to our futures, constrained by choices that have already been made and yet ever confronted by new, and more challenging, ones. To exercise any freedom of

choice (and know the limitations of these) it is necessary to understand something of the grounds of our existence in the past, to possess an adequate map of the present and to understand the range of prospects that comprise our nascent futures. To concentrate on one pole at the expense of the other is therefore, at heart, anti-educational. The existing temporal bias in secondary curricula thus seems ill advised and self defeating.

The view developed here contradicts those which see schools as merely reactive institutions, able only to reflect dominant social values and assumptions.[18] Rather, it suggests a more creative and interventionist cultural role, and one which makes a prospective outlook indispensable. But critical futures study cannot aspire to become the dominant focus of curriculum theory and practice. Such a claim would be premature and exaggerated. Instead, what is needed is a broad and sustained debate about the insights, questions, claims and theories embedded in this perspective which may then be 'filtered' through other views, other perspectives, changing and being changed in a continuous process.

Hence it is not envisaged that the foregoing can or should be transformed at once into new forms of curriculum innovation and practice. Nevertheless, in the longer term as futures thinking becomes diffused more widely throughout society, and as the problems with which futurists are concerned penetrate more deeply into the public consciousness, so educationalists at all levels will find it increasingly difficult to come to grips with pedagogic tasks without drawing upon concepts and perspectives of this kind.

Notes and References

Section One: A Critical Review of the Secondary Curriculum in England and Wales

1.1 The Curriculum Under Pressure

1.1.1 Educational Theory and Curriculum Definitions

1. Becher, T. and Maclure, S. 1978. p.10.
2. E.G. the natural sciences, although these are less coherent than is often assumed. See Barns, B.
3. See, for example Cameron, I. and Edge D. Scientific Images and their Social Uses. 1979 SISCON.
4. Moore 1974, p.18-19.
5. These positions are set out clearly in Skilbeck, M. 1976. Ideologies and Values, Unit 3 of E203. Open University. pp.23-41.
6. Moore 1974 op cit p.25.
7. Ibid p.11.
8. Stenhouse, L. 1975. p.4.
9. Jenkins, D. and Shipman, M. 1976. p.6.
10. Reynolds, J. in Hills, P. (Ed.) Conceptual Dictionary of Education. (forthcoming)
11. Becher and Maclure 1978 op cit. p.16-17

1.1.2 Who Controls the Curriculum?

1. Becher and Maclure 1978 p.35.
2. Lawton 1980, p.19.
3. Becher and Maclure 1978. p.56.
4. Ibid. p.57
5. See T.E.S. Editorial 30.1.81 and P.11 article "Head Teachers Unimpressed".
6. Becher and Maclure 1978 p.58-9
7. Kogan, M. 1978. p.85.
8. Fowler, G. in Bernbaum (Ed.) Schooling in Decline 1979. p.52.
9. This is graphically illustrated by an open letter to the Secretary of State from Northamptonshire parents, which details cuts in provision. Education Guardian 10-2-1981.
10. The proposals and their subsequent demise are summarised by Corbett, A. in 1978, p.45-51.
11. See three T.E.S. articles entitled The Arts in Decline? 16th, 23rd and 30th January 1981, and How the Cuts Bite – Official T.E.S. summary of an H.M.I. report on the effects of L.E.A. spending policies. 20.2.1981. p.18-19.
12. Fowler in Bernbaum. (op cit.) 1979. p.55
13. This theme is explored in some depth in Bolam, R. and Pratt, S. Oct. 1976.
14. A useful case study is provided by Dickinson, N. in Reid, W. and Walker, D. (Eds.) 1975. o.136-178.
15. This problem was experienced at Countesthorpe College. See Bernbaum, G. Countesthorpe College, in Harris, A. (et al) 1975, p.347-387.
16. Fowler in Bernbaum (op cit) 1979. p.67.
17. See Reid, W. 1978. Chapter 4. Practical Reasoning and Curriculum Decisions.
18. Fowler in Bernbaum (op cit) 1979. p.77.
19. H.M.I. Fourth Annual Report on the Expenditure Steering Group on Education reported in T.E.S. Feb. 20th 1981 p.18-19.
20. Kogan 1978 (op cit.) p.124.
21. Kogan, M. 1971. p.29.
22. Lawton 1980 (op cit.) p.51.
23. Ibid p.65-6
24. D.E.S. Education in Schools. A Consultative Document. 1977.2.
25. Ibid, 4.
26. Ibid, 12.
27. Archer, M. 1979. 789.

1.1.3 Structure and Content of the Secondary Curriculum.

1. Dewey was an early exponent of this view. More recent examples are Skilbeck in Golby (op cit.) 1975, and Reynolds and Skilbeck (1976)
2. See Halpin D. 1980. Exploring the Secret Garden: a summary account and critique of some recent H.M.I. proposals in the 11-16 curriculum.
3. H.M.I. 1979 p.260.
4. Ibid 19-20
5. Ibid 16
6. Ibid 17
7. Ibid 18
8. Ibid 37
9. Ibid 31
10. Ibid 41-2
11. Ibid 43
12. Ibid 43
13. Ibid 40-41
14. Ibid 217
15. Ibid 247
16. Ibid 249
17. Ibid 160
18. D.E.S. 1979
19. How the Cuts Bite – Official, T.E.S. summary of Fourth Annual Report of H.M.I. to the Expenditure Steering Group on Education. (op cit.)
20. Ibid 18
21. Ibid 18
22. Ibid 19
23. Ibid 19
24. This has to some extent been countered by proposals for a wider curriculum to 16 and beyond. See D.E.S. 1981 (The School Curriculum), Schools Council 1981 (The Practical Curriculum) and T.E.S. reports on proposals for vocational preparation 16.4.82 pp.10 and 17.
25. See section three of the dissertation. Also Henderson, H. 1978 (d) Also Markley, M. (1974). 64. These explore the possible obsolescence of 'industrial' assumptions.
26. Reynolds and Skilbeck 1976. 23.

1.2 Curriculum Reform

1.2.1 Overview of Postwar Curriculum Development.

1. Stenhouse 1975. p.198.
2. Owen, J. in Harris 1975. p.31.
3. Kliebard, H.K. in Taylor & Johnson 1974. p.173.
4. Ibid
5. Ibid p.172
6. Cremin, L. in Orlosky and Smith 1978. p.9.
7. As exemplified in the government's Assessment of Performance Unit or A.P.U.
8. See, for example Apple, M. in Dale (Ed.) 1976 pp.174-184, and a dissenting view by Taylor: Power and the Curriculum, inn Richards 1978 (Ed.) pp.7-21.
9. See Stenhouse 1875. Chap. 13.
10. McMahon 1976. p.108.
11. Becher and Maclure 1978 (op cit.) p.60
12. Ibid p.60.
13. Ibid p.61.
14. Stenhouse 1975. p.199.
15. Quoted by Manzer, R. in Prescott, W. 1976. p.10.
16. Ibid p.11.
17. Ibid p.12.
18. Caston, G. in Harris (Ed.) 1975 p.73.
19. Ibid p.74.

20. Ibid p.83.
21. Prescott, W. 1976. p.18.
22. McMahon 1976. p.111.
23. See Ibid pp.111-115 for a summary of this.
24. Stenhouse 1975 p.202
25. A survey by Nicodemus and Marshall summarised in Whitehead 1980 pp.52-54.
26. Quoted in Prescott 1976 (op cit.) p.23.
27. Corbett, A. in Harris (1975) p.91.
28. Ibid p.93
29. Lawton 1980 pp.72-74.
30. Dale, R. 1977. p.90.
31. Ibid p.64.
32. For example, see papers by Jackson, Becker and Lortie in Harris, 1975.
33. Bolam, R. 1976. p.47.
34. Skilbeck, M. 1976.
35. Bolam 1976 (op cit.) p.69.
36. Ibid p.72.
37. Ibid p.55.
38. An example of this is given in Ibid p.52.
39. Ibid p.62-66.
40. For example the Schools Council projects Geography 14-18 and Geography, History and Social Studies 8-13.
41. Schools Council News No. 33. Summer 1980 p.8.
42. Jenkins and Shipman 1976. p.79.
43. See below, Note 10.

1.2.2 Cultural Change and Curriculum Lag

1. Benjamin 1939.
2. It would be helpful if changes over time could be modelled and compared. But this presents formidable problems of analysis and measurement. Possibly a systems analysis would be appropriate. See Checkland. 1973.
3. See below, and Skilbeck 1976.
4. Lawton 1975 p.20.
5. Williams, R. 1961. p.163.
6. Whitehead, quoted in Coggin 1979 p.48.
7. Coombes 1968. p.165.
8. Reynolds & Skilbeck 1976. p.23.
9. Botkin (et al) 1979(a).
10. The problem of 'constraint' is one which we have insufficient space to deal with here. For further discussion see Olsen 1980, Morrish 1976 and Skilbeck 1976(b).
11. Skilbeck Ibid p.83.
12. Benedict 1935 p.2.
13. Taylor, C. 1976 p.191.
14. For comparison see Core Curriculum for Australian Schools. C.P.C. 1980.
15. Becher and Maclure 1976 p.103-4.
16. Ibid p.105.
17. Schwab 1962, Broudy 1962, Quoted in Lawton 1975 p.79.
18. Peterson 1960. Quoted in Lawton 1975 p.79.
19. Hirst & Peters 1970. Quoted in Lawton 1975 p.79.
20. Phenix 1964. Quoted in Lawton 1975 p.79.
21. Chanan and Gilchrist 1974. p.73.
22. See note 6.
23. See Popper 1959 and Magee, B. 1973 'Popper' (Fontana Modern Masters)
24. D.E.S. 1977. p.6.
25. Halpin 1980. p.41-2.
26. Smith, Stanley and Shores 1957.
27. Quoted in Reynolds and Skilbeck 1976. p.6 & 7.
28. Skilbeck 1976(a). pp.86-87.
29. Ibid. p.86.

30. Reynolds and Skilbeck 1976. p.127.
31. Skilbeck 1976(a) p.87.
32. Reynolds & Skilbeck 1976. p.128.
33. See Curriculum Development Centre. 1980.
34. Some 'lag' or distancing between events and human responses in unavoidable. The problem is to know when this becomes maladaptive. See Botkin (et al) 1979(a) and Lindstone & Simmonds 1977. p.5-7.
35. Historical research is a widely-accepted component of educational research, but futures research has yet to be recognised as such.
36. Skilbeck 1976(a). p.28.
37. Ibid p.28.
38. See Hirst & Peters 1970, and Popper 1959 and 1961.
39. Karier in Dale, 1976. p.91.
40. Ibid p.93 & 95.
41. Ibid p.93.
42. Ibid p.96.
43. See bantock 1971 and 1976. Also the 'Black Papers' on education.
44. Inglis 1975. p.40.
45. Ibid p.40-41.
46. Chanan & Gilchrist 1976. p.65.
47. Gleeson 1978. p.45-6.
48. Hall, S. 1977. p.29.
49. Ibid p.35.
50. See, for example, Goldthorpe, J. 1980.
51. Dale 1977. p.69.
52. For the former category, see below. For the latter, see Apple 1979, and Bowles & Gintis 1976.
53. Bowers 1978 p.275.
54. Ibid p.277.
55. Ibid p.279.
56. Ibid p.280.
57. Reimer 1971 p.19.
58. Postman and Weingartner 1969. p.47.
59. Illich 1973. p.43.
60. Ibid p.75-105.
61. Barrow 1978. p.145.
62. Ibid p.152.
63. Gintis 1972. p.72.
64. Hurn 1978. p.274.
65. Ibid p.275.
66. Westbury 1977 p.1.
67. Hughes, 1979 p.3.
68. Keegan, V. in The Guardian 22nd December 1980.
69. Stonier 1978. p.415.
70. Hughes 1979 p.6.
71. Woods 1978. p.325.
72. Ibid p.325-6.
73. Ibid p.326.
74. Bogdanor 1979 p.166-7.
75. Bowers 1978 p.285
76. Such limits may not be merely physical (Meadows 1972) but cultural and epistemological in nature. See Henderson 1978(d) and section 4.2.
77. Freire 1974. p.7.
78. Reynolds and Skilbeck 1976. p.103.
79. This suggestion should be treated as an hypothesis requiring futher study.
80. e.g. World Studies. See Schools Council Newsletter No. 36. Summer 1981. p.6. Also Schools in a World of Change. N.C.T.C.L. (1979).
81. See chapter 4.1.2.
82. lawton 1980. p.28-29/
83. H.M.I. 1977. p.11.

84. Ibid.
85. D.E.S. 1977. p.4.
86. For an example of the practicability of so doing, see Inglehart 1977.
87. See sections 3.2. and 4.2.
88. If conceptual lags are as serious as is implied above, the implicit model of society adopted by decision-makers may be seriously at variance with the reality. This question clearly requires further study.

Section Two: Curriculum Implications of the World Futures Debate

1. See McHale, J. 1978(b)
2. Ibid p.7.
3. Quoted in Cornish, E. 1977 p.69.
4. Ibid p.70.
5. Ibid p.70.
6. Ibid p.71.
7. Ibid p.71.
8. Ibid p.83.
9. Wilson, A. 1970 p.60-61.
10. Cornish op.cit. p.83.
11. See Wills, G. (et al) 1972.
12. For example: Chisholm, M. (Ed.) 1972. House, J. (Ed.) 1973.
13. See, for example, newsletters produced by Friends of the Earth, and The Future Studies Centre, Leeds.
14. See Inglehart, R. 1977.
15. A good example is Gribbin, J. 1979. Also see Ward, B. 1979 and Hall, P. (Ed.) 1977. p.245.
16. Ibid
17. op cit. (note 14.)
18. Ehrlich, P. 1968 Introduction.
19. Paddock, W & Paddock, P. 1967 p.205-229.
20. Ehrlich op cit. (note 18.). p.148.
21. Ehrlich, P & Ehrlich, A. 1970.
22. Holden, J. & Ehrlich, P. (Eds.) 1971.
23. Commoner, B. 1971 p.182.
24. Commoner, B. 1971 p.189.
25. Ibid p.300.
26. Slaughter, R.A. Environmentalism in Industrial Society 1978. (B.A. dissertation)
27. Ibid p.14-16.
28. Quoted by Cole, S. in The Global Futures Debate 1965-1976 in Freeman, C & Yahoda, M. 1978. p.20.
29. Ibid p.21.
30. Kahn, M. & Bruce-Briggs, B. 1972 p.114-161.
31. Ibid p.208.
32. Ibid p.214.
33. Ibid p.96-97.
34. Allaby M. 1971.
35. Roszsk, T. 1979.
36. Inglehart op cit. (note 14.)
37. Kahn & Bruce-Briggs 1972. op cit. (note 30). p.250.
38. Kahn, K. (et al) 1976. p.181.
39. See Myers, N. 1979.
40. Eckholm. E. 1978.
41. Kahn et al 1976. op cit. p.142 & 144.
42. Ibid p.144.
43. Ibid p.195.
44. Ibid p.197.
45. Forrester, J. 1971(a) p.4-5.
46. Ibid p.8.
47. Forrester, J. 1971(b) p.17.

48. Ibid p.23.
49. Meadows, D. (et al) 1972. p.153.
50. (The Limits to Growth Controversy) Futures Special Issue 1973.
51. Open University 1974. S 266. Block 6.
52. Cole, S. & Miles, I. in Freeman & Yahoda op cit. 1978. p.74.
53. See McHale.
54. Cole, S. op. cit. (note 28) p.40.
55. Peccei, A. 1978(a)
56. Golob, R. & Townsend, J. 1977.
57. Cole & Miles op cit (note 52) p.70-71.
58. Satin, M. 1979.
59. Goldsmith, E. (et al) 1972. Signet Edn. p.15.
60. Ibid. p.3.
61. Ibid. p.40-41.
62. Ibid. p.45.
63. Bradshaw, A. 1978. p.344.
64. Ibid p.344.
65. Ibid p.348
66. Lowe, P. & Worboys, M. Ecology and Ideology (Pre-pubn. paper)
67. For example, Rigby, A. 1974.
68. Roszak 1979 op cit.
69. Rigby op cit. p.144.
70. Henderson, H. 1978. p.520.
71. Taylor, C. 1976. p.191.
72. Editorial in Third World Quarterly Vol.2. No.1. 1980. p.XIX.
73. Harrison, P. A Road from Hell Paved With Good Intentions. Guardian 8. 6.79.
74. See population and data sheet for 1979. Population Reference Bureau.
75. Braine, Sir B. 1979. p.45.

75(a) In many respects this represents a major subdivision of the futures debate, but the issues raised are complex and political responses equivocal. See Brandt 1980, which stressed interdependence, but few of whose recommendations have yet been put into practice.

76. OECD 1979. p.6-7.
77. Ibid p.161.
78. Ibid p.171.
79. Ibid p.187.
80. Ibid p.193-4.
81. Ibid p.278.
82. Ibid p.278.
83. Ibid p.278.
84. Ibid. p.401.
85. Ibid. p.416.
86. McHale 1979 discusses this.
87. Henderson, H. 1978(d) p.317-324.
88. Schumacher, E.F. 1974 p.30. Abacus Edition.
89. Schumacher, E.F. 1977 p.68.
90. Schumacher 1974 op cit. p.16.
91. Ibid p.25.
92. Ibid p.35.
93. Ibid p.36.
94. Ibid p.45.
95. Ibid p.47-8.
96. Ibid p.83.
97. Ibid p.247.
98. Henderson H. 1978(a) p.83-4.
99. Henderson H. 1978(d) op cit. p.322.
100. Henderson H. 1978(a) op cit. p.27.
101. Ibid p.27-28.
102. Ibid p.28.
103. Ibid p.118.
104. Ibid p.21.

105. See the example of Japan given in ibid p.111.
106. Henderson 1978(d) op cit. p.318.
107. Ibid p.319.
108. Ibid p.319.
109. Henderson 1978(b) op cit. p.381-398.
110. Ibid p.397.
111. See Bezold 1978 and Habermas 1976.
112. See Lucas 1976 and Michael 1978.
113. This is well brought out in Ward, 1979 and Brandt 1980.
114. See Briggs 1978 for a comparison of problems faced both by history and futures.
115. A useful review is provided in Forester 1980.
116. Flood and Grove-White 1976, Jungk 1979.
117. See Peccei 1981, part one.
118. Henderson 1978(d) p.321.
119. This is discussed in Lucas 1976 and Margolis 1979.
120. See, for example Touraine 1979.
121. Paddock and Paddock 1967.
122. Goldsmith 1971.
123. This is well described in Freire 1974.
124. E.G. Taylor 1971. See also chapter 4.1.2.
125. See Henderson 1978(a) and Kumar 1978.

Section Three: Towards Critical Futures Studies

3.1 Aspects of the Field

3.1.1 The Study of the Future

1. The issues summarised in section two are by no means exhaustive. e.g. see Goodpaster, K and Sayre, K. (Ed.) 1979.
2. Matthew 6:34 (King James Version)
3. See Anzalone, S. 1980. Cognition and the Future.
4. Ibid p.4.
5. See Watson, I. Miracle Visitors 1978 p.191-2. (Reproduced in appendeix)
6. Singer in Toffler 1974. p.21.2
7. Ibid p.23.
8. Jouvenal 1967 p.30.
9. Ibid p.4. & 6.
10. Ibid p.27.
11. This is explored in depth in the Open University Course Man-Made Futures 1975. and textbook of the same title (Ed. Cross. et al 1974).
12. Emery F. develops this idea in Futures We are in 1977. See also Lynch, J.E. 1981.
13. See McHale 1978(a) p.709.
14. Ward, 1979
15. Harman 1979
16. See McHale 1976.
17. Journal 1967 p.10-45.
18. Boulding in Tugwell 1973 p.86.
19. Journal 1967 p.52.
20. Meadows, D. (et al) 1970
21. e.g. Smith & Thompson (Eds.) 1980.
22. See Ehrlich & Ehrlich 1970 p.53-8 for a Pre-1973 example of this concern.
23. See Myers 1979
24. See Eckholm & Brown 1977.
25. See Eckholm 1978
26. See Patterson 1976 and Ehrlich & Ehrlich (op cit.) Chaps 6. & 7.
27. Goulding (undated) p.10.
28. This question has been explored in depth by Passmore, V, in Man's responsibility for Nature, 1974.
29. See Smith & Thompson op. cit.

30. Popper 1959
31. Jouvenal 1967 p.5.
32. See Mulkay 1979, (and other citations below relating to the sociology of science).
33. See Singer (op cit. no e 6.)
34. Jouvenal 1967 p.41.
35. Ibid p.42.
36. Ibid p.114.
37. See section four, for discussion of 'environmental monitoring' and education.
38. See Tait, J. 1975.
39. See Huber in Fowles 1978. p.208.
40. Woodell 1979
41. See Boulding (op cit.) Note 18.

3.1.2 Time Past, Present and Future

1. Gurevich 1976 p.231.
2. Ibid p.232
3. Ibid p.234
4. Ibid p.233-4.
5. Ibid p.234-5
6. Ibid p.236.
7. Ibid p.240.
8. Ibid p.241.
9. Ibid p.241.
10. Ibid p.242.
11. Ibid p.242.
12. Ibid p..230
13. See Toffler 1970, 1975 and 1980
14. Quoted in Ellis 1973. p.116.
15. McHale, 1971 Frontispiece to Ballantine Edition.
16. While this re-formulation is the writer's own, it expresses central tenets of the futurist enterprise. See chapter 3.1.3.
17. Carr 1961. p.11.
18. Barraclough, quoted in ibid p.14.
19. Ibid p.24.
20. See Anderson. 1977.
21. e.g. NASA could not overcome inherent time lags of several seconds in communications with astronauts on the moon.
22. Anderson 1977 p.16.
23. Fraser, quoted in ibid p.18.
24. For examples see JANTSCH & WADDINGTON 1976, CAPRA 1975 and MARKLEY 1974.
25. Watson, 1978 p.192.
26. This 'double mediation' is often overlooked in American futurist writing. See 3.1.3.
27. Loveridge 1977 p.54.
28. Briggs 1978 p.448.
29. Amara 1981 c.p. 45-46
30. This is particularly true of the physical infrastructure of towns, cities and roads, etc. but may also apply to other areas of social and economic policy where past decisions have exerted strong effects e.g. the Comprehensivisation of schools
31. This helps to explain why 'warnings' are often unheeded. See Lindstone's prologue on discounting the future – Lindstone & Simmonds 1977.
32. Wagschal 1980 p.11.
33. See Carr 1961. Chap. 1. also A.J. Ager's The Problem of Knowledge. 1956.
34. e.g. Trend extrapolation and structural modelling. See Ferkins 1977 p.20-21 and Lindstone in Lindstone and Simmonds 1977. p.133-140.
35. See Tait 1975 for a concise summary of the uses and limitations of these techniques.
36. e.g. See Mendell in Fowles 1978 p.149-161.
37.

3.1.3 The Futures Field: Structures, Themes, Critique

1. Amara 1981(a) p.25.
2. See Simmonds 1977 and Tait 1975
3. However, some futures research resembles the latter. See below.
4. See Lindstone and Simmonds 1977, parts three and four.
5. See Marian 1972
6. Amara 1981(b) p.64.
7. Henchey 1977 p.7.
8. Stableford 1981.
9. Amara 1981(a) p.29.
10. Cross 1977 p.26.
11. e.g. Modelling and Simulation. See Tait. 1975. part 2.
12. See McHale in Lindstone & Simmonds, 1977.
13. See Whiston 1979, concluding chapter.
14. O.E.C.D. 1979
15. Bassage 1981
16. Markely 1976.
17. Mendel 1978.
18. See Jeffery, J. 1977, an early example of the eclectic use of the futures field.
19. Wooddell 1979(a) p.19-32.
20. See Kaje in Lindstone & Simmonds, 1977. p.65-76.
21. Saunders in Feather 1980 p.383.
22. Cornish 1980(b) p.15.
23. Introduction to Futures Network Newsletter. Summer 1981.
24. 1981 Futures Network Membership. list.
25. As has happened repeatedly in more 'scientific' endeavours. See Mulkay 1979.
26. Amara 1978 p.42.
27. Amara 1981(c) p.42.
28. Goldthorpe 1971 p.287.
29. Cornish 1980(b) p.17.
30. See Vickers 1979 for a considered treatment of this issue.
31. Wooddell 1979(a) p.40.
32. Quoted in ibid p.35.
33. Toffler 1970 p.403-417
34. Bezold (Ed.) 1978
35. See, for example Boyle (et al) 1977, section III.
36. Wooddell 1979(a)
37. Ibid p.39.
38. Toffler 1970. p.416.
39. Ward. 1979 p.266.
40. Cornish 1980(b)
41. Leach 1967
42. Harman 1979
43. Henderson 1978(d)
44. Hall 1977 p.263.
45. Hirschhorn, L. 1979.
46. For a graphic example of official secrecy see Campbell 1981.
47. An excellent overview of this transition is provided by Hillegas, 1967
48. Polak 1961.
49. Boulding in Tugwell 1973 p.76-97.
50. e.g. Jantsch & Waddington 1976.
51. Particularly vis a vis speculative fiction. See 3.2 below.
52. Huber 1978.
53. Wooddell 1979(b)
54. Singer in Toffler 1974. p.21.
55. Wooddell. 1979(b)
56. Bell and Mau 1971.
57. Wooddell 1979(b) p.41-43.
58. Ibid p.42.

59. Fletcher 1979(b) p.30.
60. Herchey 1977.
61. For example, Compare DROR 1975, AMARA 1981, HENCHEY 1977, CORNISH 1977, and HARMAN 1979.
62. Amara 1981(b)
63. Nelson 1980. p.21.
64. Cornish 1980(b) p.17.
65. Platt, J. (1966, p.16.
66. As some futurists now recognise. See for example Wagschal & Anzilone 1979.
67. Radnitzky 1972. p.119.
68. McDermott 1980(a) (b) & (c).
69. See Powell's description of this in Jones 1981, 88-91.
70. See Lindstone's comments in Lindstone & Simmonds 1977. p.29. Also McHale 1977.
71. Amara 1981(a), (b) & (c).
72. Jones 1977.
73. This point is developed in Goldthorpe 1971.
74. e.g. Hoos 1977.
75. Carey 1979 p.412.
76. See section 4.1.
77. Wagschal & Anzilone 1979.
78. Moore, 1981 p.16.
79. Toffler 1981, reprinted in Cross 1974. p.39.
80. e.g. The primacy accorded to technical change (see Moore 1981). For uncritical utilization of the "future shock" thesis see Burdin 1981, Rockler 1980, and the W.F.S. book catalogue for 1979-80 esp. p. 45-46.
81. e.g. Henderson, Harman, Roszak.
82. See Benedict 1935 for a classic treatment of this theme.
83. Kite 1981 p.12.
84. Miles 1978. p.74-5.
85. Hoos 1977. p.340.
86. Ibid 341.
87. See Peters, T. (1974) paper on presuppositions.
88. Fletcher 1981.
89. Ibid p.29.
90. Ibid p.29.
91. Ibid p.31.
92. See Amara 1981(b) p.65. for a prime example.
93. This is particularly evident in Goldsmith's writing. See his essays in early volumes of The Ecologist from 1970 onwards.
94. See, for example, Wills (et al) 1972, and Economist brief 11 (1968), both on technological forecasting.
95. Goldthorpe 1971. p.280-1.
96. Ibid p.28-285.
97. Ibid p.284.
98. e.g. with respect for projected U.S. demands for raw materials, particularly the rare 'strategic' metals.
99. Miles 1978. p.72.
100. Cornish 1980(b) p.18.
101. Miles 1978. p.73.
102. Miles 1979 p.28-9.
103. e.g. Radnor, 1981.
104. Jones 1977, Whiston 1960 p.345. Miles 1978. p.82.
105. Fowles 1977.
106. Mulkay 1979, provides an excellent overview of recent work.
107. Miles 1979 p.81.
108. Jones 1977. p.206.
109. Wagschal & Anzilone 1979. p.11.
110. Ibid p.12.
111. It is also belied by the growth of the 'human potentials' movement. See Ferguson 1979, Schumacher 1977, and Albright & Albright 1981.

112. e.g. Wirth 1979, Henderson 1978(d)
113. Young 1968 p.vii (intro.)
114. See CARR 1961.
115. Ferkiss 1977, p.61.

3.2 Elements of Critical Futures Study

3.2.1 Speculative Story-Telling: An Under Utilised Resource

1. Slaughter 1978(b)
2. See, for example, Bettelheim 1976 on the meaning and importance of fairy-tales.
3. Boulding 1973.
4. e.g. Scholes, 1975. Parrinder 1980.
5. However, such a survey is needed to make SF itself more accessible to futurists.
6. Often Huxley's 'Brave New World' and Orwell's '1984'. Sometimes Bradbury's 'Farenheit 451', Lem's 'Solaris' or Herbert's 'Dune'.
7. Stablefore 1981.
8. Scholes op cit. p.7.
9. e.g. Priests 'Indoctrinaire'. Some paperback editions portray his 'moral weakling' as a figure from heroic fantasy ….
10. Most valuable here is Nicholls 1979 Encyclopaedia of SF. which has thematic entries which provide access to work on specific topics.
11. Disch, T. The Embarrassments of SF in Nicholls 1976. p.151.
12. For a recent overview see Global Future: Time to Act, U.S. Dept. of State 1981.
13. This theme is explored in depth by Mumford 1966, 1971 and Winner 1977. (See 3.2.2. for further discussion).
14. See Parrinder 1980 for comment on SF in the context of British Education. See Lindstone &nSimmonds 1977, and Conboy 1979 for examples of otherwise competent overview of futurism which omit SF.
15. See Radnor, A. 1981, for a particularly one-sided example.
16. The OECD study, Facing the Future is a good example, since it pays explicit attention to possible value changes.
17. These are set out in, for example, Asimov 1974. Towards Tomorrow.
18. Callenbach 1978.
19. See Part 6. of Future Shock 1970.
20. Learning for Tomorrow 1974, exp. paper by Livingstone, SF as an Educational Tool.
21. Slaughter 1978(b), Scholes 1975 and Parrinder (Ed.) 1979 cover this.
22. Scholes op cit. p.75.
23. The integrating potentials of SF are explored in Aldiss 1978.
24. Livingston in Toffler 1974 op cit. p.235.
25. See Isaacs 1977 SISCON Unit for a competent review of 'The Biological Theme in Science Fiction.'
26. Clarke 1962 p.8. (Pan edition)
27. Suedfeld and Ward 1976.
28. See Nicholls 1979 p.133-4 for other works on this theme
29. See Forester T. 1980 for an over-analytical approach to microelectrics.
30. Stableford 1981. p.77.
31. This has clear links with Polak 1961 and the study of images of the future (3.1.3.)
32. Scholes 1975 op cit. p.3708.
33. See Survey 1979 and the author's theory of cognitive estragement.
34. Williams, R. Utopia and Science Fiction, in Parrinder (Ed.) 1979. p.63.
35. See Radnor 1981, and Varley's novel TITAN (1979)
36. Holquist in Rose 1976 p.146.
37. Jackson 1981 p.21.
38. See Nicholls 1979. p.605 for other themes and approaches.
39. Scholes and Rabkin 1977. p.177.
40. Rein 1976. p.73-4.
41. Ibid p.75-6.
42. See Schon 1963 for a full discussion of the metaphorical nature of language and the 'displacement of concepts'.

43. Aldis 1978 op cit p.38.

3.2.2 Revising and Refining a Futures Perspective

Introduction

1. See OECD 1979 and Global 2000 Report (Penguin 1982). C.E.Q.
2. Myers 1979 details some of the environmental issues, Thompson 1982 gives a concise overview of military technological threats.
3. Excellent summaries may be found in Cornish 1977, chapter 9, and Fitch and Svengalis 1979, chapter 1.
4. This view of the centrality of open-ended problems to a critical futurist perspective arises from hermeneutics, discussed below.

Section 1. Re-assessing the 'Standard View of Science'

1. Mulkay 1979 p.19-20.
2. See the discussion of 'Mertonian norms' in Ibid.
3. Handlin in Barnes 1972, p.263.
4. Ibid.
5. See Ziman, J. 1980, for an in-depth review of this. Also Science in Society Project Materials and S.T.S.A. Newsletter.
6. Mulkay op cit. p.27-9
7. Ibid p.29.
8. See Nelkin 1971 and 1978 for studies which belie such simple views.
9. Mulkay op cit. p.33.
10. Ibid p.34.
11. Ibid p.37 and see Schon 1963.
12. Ibid p.43.
13. Ibid p.45.
14. Ibid p.48.
15. Ibid p.52-3
16. Ibid p.54.
17. Popper 1959 and 1963 cited in Ibid p.54.
18. Mulkay op cit. p.54.
19. Ibid p.54 & 60.
20. See Rein 1976 for one attempt to deal with this problem.
21. See Capra 1975.
22. Both of which may be used to <u>obscure</u> ideological commitments.

Section 2. Ideology and Interests

1. "Effectiveness" here relates to communication, understanding and pursuit of emancipatory interests. See below.
2. Reynolds 1969 p.4-8. and see Mannheim, 1936. Ideology and Utopia.
3. Ibid
4. Ibid p.4.
5. Ibid p.5.
6. That is, those elements identified as central in chapter 3.1.3.
7. See chapters 3.1.1. and 3.1.2.
8. See below, Habermas 1971 and Taylor, C. 1976.
9. e.g. Miles 1978, Whiston 1980.
10. Wooddell 1979 (p.103-5) Sees this as a major problem for futures education.
11. Miles 1980 p.30.
12. See Henderson 1981(b) for an assessment of this.
13. Arbitrary in the sense of being limited by the kinds of activities dominant groups perceive it to be in their interest to fund and support.
14. See Miles 1981 for a concise summary of the fragmented 'spread' of futurist activities in Britain.

15. I.E. support free of ideological 'strings' (a role that universities may once have had the resources to fulfil).
16. Miles 1978 p.78.
17. Miles 1980 p.31.
18. e.g. Schumacher 1974, Henderson 1981(b)
19. Habermas 1972.
20. See Keat 1981, Rule 1978 and Bernstein 1976.
21. Bernstein op cit. p.196.
22. Ibid p.196.
23. Habermas 1972 p.309.
24. Ibid
25. Ibid p.310
26. Ibid p.310
27. That is, one may utilise many of Habermas' insights while recognising that some aspects of his 'philosophical anthropology' have serious defects or ambiguities. See Keat op cit.
28. See Toffler 1980, Rifkin 1980, Radnor 1981, Gatland & Jefferis 1979.
29. See Wilby 1979 for a concise summary of this.
30. What constitutes 'the common good' during a period of instability and change is a question that requires further study. See Taylor, C. 1979 for a philosophical view, Robertson 1978 for a more pragmatic one.
31. This is not to say that these have not been pursued at all, but that such attempts known to the author (e.g. Henderson 1978(a) and 1981(b) tend to be grounded in the rhetoric of social movements than in defensible social theories.
32. Reynolds 1969.

Section 3. Critical/Hermeneutic Refinements

1. e.g. Goldsmith 1970, Laszlo 1978, Meadows and Meadows 1972 which exemplify the fallacy of the transmission 'theory of communication'.
2. e.g. the revision or rejection of inherited meanings. See Taylor, C. 1976.
3. Van Manen 1977. p.213.
4. Ibid p.214. Many of these ideas derive from Heidigger. e.g. his 'Being and Nothingness'.
5. Radnitzky 1972, p.6-7.
6. Reynolds 1980 p.1.
7. Taylor, C. 1976 p.166.
8. Peters, T. 1974 p.214.
9. Ibid p.210.
10. Ibid p.220.
11. Bauman 1978, chapter 9 expands on this.
12. Taylor, C. op cit. p.167.
13. Radnitzky op cit. p.16.
14. Such resources being always available, but under-utilised or 'occluded'.
15. Radnitzky op cit. p.22.
16. Ibid p.40.
17. Ibid p.122.
18. Notably the de-stabilising dynamism of continuing technical innovation. See below.
19. Radnitzky p.111.
20. Nicholson 1979.
21. Habermas 1971, p.60.
22. e.g. Bright, 1978. Also see the journal TECHNOLOGICAL FORECASTING and SOCIAL CHANGE.
23. See Wynn, 1974 for a critique of technology assessment.
24. Despite forecasting, technologies continue to erupt 'unexpectedly' into everyday life with minimal regulation. e.g. Biomedical Technology. See Chapter 4.2.2.
25. Winner 1977. p.29.
26. Ibid p.2020
27. e.g. Mumford 1966, 1971, Ellul 1964, Marcuse 1964, Leach 1967, Gross 1973.
28. Radnitzky 1972 op cit. p.133.
29. Ibid p.133.

30. Ibid p.136.
31. Ibid p.136.
32. This theme is taken up by Botkin et al 1979, and is discussed in section four in relation to curriculum change. Also see Peccei 1981.
33. Habermas 1971 p.111.
34. Ibid p.112-3.
35. Ibid p.113.
36. Ibid p.61.
37. See Radnitzky op cit for a very clear summary.
38. Mumford 1966(a) p.86.
39. See note 20, section 2, above
40. A view congruent with the Science, Technology and Society (STS) movement. (See Ziman 1980)
41. Taylor, C. op cit. p.188-192.
42. Ibid p.142.
43. peters 1974. p.212.

3.2.3 Critical Futures Study: A Tentative Outline

1. See sections 2.1 and 3.1
2. Jouvenal 1967, Radnitzky 1972.
3. For example, debates about the nature of ideology, technology and the dynamics of social change.
4. Such a presumption is defensible rather than provable. See Radnitzky 1972, p.174-185.

4A. See Markley 1974 and 1976, Cade and Coxhead 1979 and chapter 4.1.1 references on human potentials.

5. However, discussion and consensus should both be regarded as dynamic, evolutionary concepts. See Jantsch, 1978.
6. The question of which cultural elements remain stable and which are most susceptible to change is a major issue. See Williams 1961 and 1981.
7. Tis re-states the oft.-expressed view that futurists can or should "help to make others' futures more real". – Chris Dede, Toronto 1980.
8. The sociology of the futures field has yet to be written, but there is some evidence that the prototypes of such communities may already be in existence. See Satin 1979, Chapter 22.
9. Slaughter 1978b.
10. See Hall 1977, p.263 and Boulding 1978.
11. Kumar 1978 p.300.
12. Taylor, C. 1976, p.189-191.
13. Of the many interpretations of this breakdown, Roszak 1972, Markley 1974 Robertson 1978 and Satin 1979 are accessible and suggestive.
14. That is, it does not draw directly on critical and hermeneutic traditions, but embodies similar emancipatory intents.
15. Markely 1974 p.64.
16. Henderson 1978d exemplifies this.
17. Because the legitimacy or 'fit' of such terms may have been rendered problematic and require a more thorough-going analysis. See Schon 1963.
18. It implies an acceptance of uncertainly and openness to complexity. See Jantsch 1978 for a suggestive model.
19. Hubbard 1981. p.31.
20. Ibid p.36.
21. Ibid p.35.
22. Ibid p.36-7.
23. Ibid p.37 and Jantsch op cit.
24. Jantsch Ibid and Elboim-Dror 1971.
25. Satin 1978 Chapters 8 and 20.
26. Ferguson 1979.
27. Capricorn 2050 – A prototype "steady-state" urban settlement. Designs and background material shown at the First Global Conference on the Future, Toronto 1980.

28. The nature of the barriers between those who accept the status quo and those who attempt to generate alternatives to it is a field ripe for study, especially as a problem in communication and understanding.
29. Boulding 1978, p.2.
30. Ibid p.4.
31. Ibid p.4.
32. This is made explicit in Markley 1976.
33. In Hendersons view, individuals change faster than institutions and some of the latter faster than the cultural mileau. See Henderson 1978a and 1981b.
34. See note 10 above. Also Toffler 1970.
35. Boulding 1978, p.7.
36. Hopkins 1980, p.388.
37. See chapter 3.1.2
38. See Schon 1971 and Jantsch 1978.

Section Four: Educational Responses to Uncertain Futures

4.1 Education and the Future in Two Cultural Contexts

Introduction

1. I.E. that subject-based, teacher-led, non-individualised forms of curriculum are suitable preparation for future living. However, the meaning of 'traditional' here has become problematic.
2. See the newsletter of the World Future Studies Federation (WFSF) for further information.

4.1.1 Aspects of Futures Education in the United States

1. E.G. Stirewalt 1977, p.16.
2. It has been widely reprinted and translated into several languages.
3. Wooddell 1979a p.65.
4. Eldredge 1970, p.136.
5. Kauffman 1976a. p.235.
6. Wooddell 1979a p.60-61.
7. Stirewalt 1977 p.20.
8. Kauffman op cit. p.235.
9. Stock 1977 p.20.
10. Kauggman op cit. p.235.
11. Ibid. p.236.
12. Quoted in Wooddell op cit. p.71.
13. Ibid p.67.
14. Eldredge, Quoted in Ibid p.68.
15. Ibid p.75-76.
16. Ibid p.76.
17. See WFS catalogues and Education Tomorrow newsletters, which suggest that futures education may be in the process of developing into a discipline in its own right.
18. Wooddell op cit.
19. Toffler 1970, p.343.
20. Kaufmann 1976a p.4.
21. Glines 1980b p.5-6.
22. See Ibid. and Toffler 1970.
23. Bowman 1980a p.117.
24. Ibid p.117.
25. Wooddell op cit. p.78.
26. Ibid p.2.
27. See the discussion regarding the mediation of cultural change in chapter 3.2.3.
28. Glines 1978, Educational Futures 1, p.B.38. (Sic).
29. Shane 1974, p.183.
30. Bowman 1978, p.27.

31. Ibid p.28.
32. Wooddell op cit. p.78.
33. Kaufmann 1976a, p.7.
34. Ibid p.7.
35. Platt 1973.
36. See Botkin 1979a.
37. There is clearly a convergence between futurist's interest in global perspectives, peace studies and world development issues. See overview of the World Studies project in Schools Council News 36, Summer 1981, p.6.
38. Wooddell 1981, p.22-24.
39. Ibid p.23-24.
40. Kauffman 1976a p.28.
41. Ibid p.30.
42. Glines 1978-1980, Shane 1973 Chapter 4.
43. Kirschenbaum and Simon 1974, p.263.
44. Iozzi and Cheu 1979, p.123-124.
45. Houston 1980, p.166.
46. Ibid p.157-158.
47. See Torrance 1980.
48. Ferguson 1979 (Reprinted in Resurgence 81, 1980, p.25.)
49. Notes on seminar by Al Peakes, School District Administrator, Montclair, New Jersey at the Third Annual Conference of the WFS Education Section, Amherst, Mass. USA. November, 1980.
50. However, such a synthesis may be brought into question to the extent that a futures orientation questions underlying assumptions.
51. Stock, 1977, p.3.
52. Ibid p.2.
53. Fletcher 1979a, p.39.
54. Strudler, quoted in Ibid p.40.
55. Fitch and Svengalis 1979, p.27.
56. Shane 1974, also see Montclair materials in appendix.
57. Houston, 1980, Torrence 1980.
58. From notes of seminar led by Penny Damlo, Teaching Futures, Toronto 1980
59. Wagschal 1981.
60. See Fitch and Svengalis op cit. Chapter 5.
61. Rockler 1980.
62. Kirschenbaum and Simon 1974.
63. Stock 1972, p.4.
64. See section 4.2 and Kauffman 1976a Chapter 2.
65. Fletcher 199a p.74-83, Fitch and Svengalis op cit. Chapter 6.
66. Cornish 1977, p.216.
67. Peakes, (note 49).
68. Brooks 1981.
69. American experience suggests that the earlier children are exposed to futures thinking, the better. See Toffler 1974, Chapter 11, Shane 1974 and Nicholson 1978.
70. Peakes, (note 49).
71. Ibid.
72. Ibid.
73. Ibid.
74. Fitch and Svengalis op cit. p.23-25.
75. See Glines 1978 and Bowman (et al) 1978.
76. See Chapter 1.1.1. and Moore 1974 on basic assumptions.
77. Henchey 1977 identifies other sets of assumptions involved in thinking about the future.
78. Dede, 1979.
79. Pulliam 1979 p.59-63.
80. Bowman (et al) 1978 and 1980.
81. See Skilbeck 1976 (OU E203, Unit 3), discussion of reconstructionism.
82. McHale 1976.

4.1.2 Treatment of 'the Future' in England and Wales

1. See section one, cumulative research indexes, HMI 1977, 1979 and 1981. Also report on Ross and McNamara's "The B. Ed. Degree and its future", TES 12th March 1982, p.8.
2. Quoted from "Prospect 2,000", BBC 1970. The other three are Radnor 1981, A.S.E. 1981 and BBC 1981.
3. Bulham, L. "The long road from dictation to discovery" TES 8-1-82, p.5.
4. EG. Gatland and Jefferis 1979.
5. See Cornish 1977. p.7-10 for examples of unintended consequences of innovations.
6. EG. The non-linearity of change processes. See OECD 1979, p.278.
7. Calder 1970 p.7,8 and 34.
8. Ibid p.2.
9. Ibid p.7.
10. Thompson 1979, p.70.
11. Livingstone 1974.
12. See chapters 3.1.1. and 3.1.2. Also Briggs 1978 and Carr 1961.
13. Pluckrose and Wilby 1980, p.7.
14. Ibid. p.12.
15. See Jouvenal 1967, Fitch and Svengalis 1979 and section 4.2.
16. See Harman 1979, Henderson 1978a and Ferguson 1979.
17. Taylor, W. 1971. p.124.
18. Ibid. p.125.
19. Ibid p.135.
20. Ibid p.128.
21. See Woodell 1981.
22. At least in the existing educational climate. It may be that the longer term planning implications are equally far-reaching eg., vis-à-vis developments in communications technology.
23. Skilbeck 1973, p.29.
24. Exemplified by Project QUEST. See chapter 4.2.1 and Mecca and Adams, 1982.
25. Skilbeck 1973, p.35.
26. Nicholson 1977, p.7.
27. Ibid p.8.
28. Ibid p.25.
29. Jeffery (et al) 1977.
30. Jeffery 1979 (personal communication).
31. Jeffery 1977.
32. Ibid.
33. A survey of innovations in futures study in Britain would provide essential data for further work in this area.
34. EG. See Future Survey cumulative indexers (WFS).
35. By this time, life-extension technologies may have had dramatic effects. See Ebel (et al) 1979, and Morison 1978.
36. Whence the origins of much rhetoric (and concern) about 'human survival'. See Goldsmith 1970.
37. Toffler 1970 has some acute observations on this theme.
38. A trans-disciplinary approach involving social scientists, historians and futurists could perhaps break new ground.
39. IE., Because they are seldom aired in the mass media, being mostly confined to specialised journals and books.
40. Some of the main centres in the UK are located at the universities of Bradford and Lancaster, and at St. Martins College, Lancaster. But their impact on the curriculum has been slight to date.
41. See Ziman 1980 and the STSA newsletter.
42. A pilot project in World Studies was described in the Schools Council News, Summer 1981, p.6.
43. Crick and Porter 1978 draw out some parallels with futures education.
44. See the "Extra" on "Schools and Computers", TES 5th March 1982.
45. But for this to develop into a sustained 'conversation', institutional support and effective communication will be required.

4.2 Implications of Critical Futures Study for Curriculum Renewal

Introduction

1. See Caston on professionalism, in Harris 1975 p.73-86.
2. See Becher and Maclure 1978 for a pessimistic view of core curricula.
3. The remark "crucially involves prediction" was written by a participant on notes provided by the author for a seminar on teaching futures. See also the introduction to Pluckrose and Wilby, 1980 which reflects the same confusion.
4. See chapter 3.1.3.
5. This is an essential characteristic of a critical theoretical approach. See Habermas 1971 and Radnitzky 1972.
6. See Habermas Ibid., Ellul 1964, Marcurse 1964, Mumford 1966b and 1971. Also Winner 1977, on the theme of "technics out of control".
7. See section three, particularly 3.2.3.
8. See 3.2.3.
9. The implications of critical futurism are too numerous to be fully elaborated by one individual. Neither are the initiators of proposed innovations necessarily in the best position to assess them. See MacDonald and Walker 1976.
10. See 4.2.2 for an outline of some research problems.

4.2.1 General Implications of a Critical Futures Perspective

1. This point is well made in Hargreaves 1982, p.97.
2. Such comments are common in news reports of strikes and cutbacks.
3. 'Realistic' in the sense of being conditioned by notions of basic skills, exam results and qualifications for jobs.
4. See section 3.1 and Jouvenel 1967, who suggested that without 'fore-casting' there is no freedom of action.
5. See discussion of 'dynamic conservatism' in Schon 1971, Chapter 2.
6. See Schon (op cit), Michael 1978, and Papert 1981.
7. See Hargreaves 1982 on the continuing dominance of cognitive/intellectual curricula, and Williams 1971, p.145-176.
8. See Williams Ibid. and Apple in Dale 1976, p.176.
9. EG. between pupils needs as individuals and production-oriented manpower needs. See Hall 1977, Chapter 11, on the denial of basic needs in Western societies.
10. This is one reason why the debate about the nature of the emerging post-industrial society can be regarded as central to curriculum studies. Also see "Unheard alarms and the decline of the industrial system", in appendix.
11. EG. global education, peace studies, STS.
12. See Charles Taylor in Connerton (Ed.) 1976, p.186-192 on the breakdown of meanings and accepted standards.
13. Kuhn 1962.
14. Hargreaves 1982, p.17.
15. Ibid p.29. and Willis 1977.
16. Ibid. Chapter 5.
17. Hall 1977, p.230.
18. See 'Re-assessing the Standard View of Science' in 3.2.2.
19. See Habermas 1971 and Winner 1977.
20. EG. deference to authority, work, community solidarity, the extended family, place-based identity. And see Laslett 1965.
21. See C.S. Lewis' 1947 essay "The Abolition of Man", Schell 1982 part 2, Berger 1976 and chapter 3.2.1.
22. See section 3.1.
23. Apple in Dale 1976, p.176.
24. Ibid. p.182.
25. IE. the occlusion of human emancipatory interests. Habermas 1971.
26. Ways in which technological imperatives retain their dominance.

27. Schumacher 1977 refers to the need to reconstruct the categories and meanings which are constitutive of our existence.
28. 'Future imaging' is Polak's term, see Polak 1961 and chapter 3.1.2.
29. See Jouvenal 1967 and Popper 1961 for contrasting views on the possibility of having 'knowledge' of the future.
30. The process of selecting and validating such resources represents a major concern for any futurist research community.
31. On progress, see Pollard's historical account 1971; on mastery and control see Capra 1975, and Winner 1977, p.198-202.
32. See conclusion.
33. That is, the meritocratic, bureaucratised, high technology, hyper-industrial scenario favoured by Kahn and associates. See Kahn, 1976.
34. See Friere 1974, p.7.
35. There are precedents for this: eg., MACOS and the Integrated Studies Project. However the routine utilisation of controversial material remains a difficult problem in most schools.
36. Construction is a metaphor for active involvement. Sustainability is a key criterion applicable to proposed alternatives. See Brown 1981 and 1982. Also Farmers must …. get back to nature, in appendix.
37. This is explicitly recognised by Williams 1971, p.141.
38. See Henderson 1981b, Ferguson 1981, Harman 1979.
39. See chapter 3.2.3. Williams 1971, p.65 makes a similar point in respect of a 'new structure of feeling'.
40. See section 3.1.
41. Toffler's term. Toffler 1970.
42. See 4.2.2. 'Awareness and Understanding of Macro-change Processes'.
43. Social change has been called "the great unsolved problem of sociology."
44. See Jouvenal 1967 on the colonisation of the future.
45. Winner 1977, p.295.
46. Mumford 1966b and 1971.
47. Skilbeck 1975, p.29.
48. This phrase is American in origin (Ferguson 1981, Markley 1974) and is used here since there is no British equivalent.
49. See Fines, J. 'Exploring in the Open', TES 6-11-1981, p.19. The writer identifies "four areas where history contributes directly to the whole curriculum". These are the disciplines of reading and writing; history as a tool of speculation about human motivation; history as "the ideal area for the exercise of controlled imagination" and history's "natural concern for politics and values".
50. A clearly reconstructionist view. See Skilbeck 1975 and 1976b.
51. See Ibid. for a more detailed outline.
52. Chapter 1.2.2.
53. Reynolds and Skilbeck 1976.
54. Skilbeck 1976b. p.83.
55. Ibid p.84.
56. Ibid p.84.
57. Ibid p.84.
58. Ibid p.87.
59. See Schell for a recent assessment of the cultural significance of the nuclear threat, and Botkin (et al) 1979 for a view of the educational implications of the world problematique.
60. See Morrish 1976, Chapter 8, and Dalin 1978.
61. See Michael 1973, part three, particularly discussion of 'boundary-spanning'.
62. Bright, J. Seminar at First Global Conference on the Future, Toronto 1980.
63. Ibid.
64. See Lindstone and Simmonds 1977, for several approaches to these and related questions.
65. Stenhouse 1975, chapter 6 has a useful critique of this model. Also see Mecca and Adams 1982, for a detailed account of QUEST.
66. This implies a 'process' orientation. See Ibid. chapter 7.
67. EG. Schon 1971.
68. For more detailed assessments of the educational implications, see McHale 1976 and Papert 1981.

69. This will no longer be limited by the intrinsic limitations of print technology.
70. The control and 'ownership' of information is a major political issue which has yet to be resolved. The selection and processing of data for schools would seem to require appropriate pedagogic criteria. Conflicts can be foreseen between the latter and government or commercial restrictions.
71. Papert 1981, attempts to combine Piagetian developmental theory with an optimistic (but far from naïve) view of the educational uses of computers.
72. Ibid p.114.
73. Ibid p.37.
74. Ibid p.5.
75. Eg. threats to privacy, security of data, computer draud.
76. Papert (op cit) p.183.
77. Ibid p.188.
78. Kahn (et al) 1976.
79. Glines 1978, B-38. (Sic.)
80. Shane 1973, Chapter 3.
81. Husen 1971. p.21.
82. Teige, Harman and Schwartz in Lindstone and Simmonds 1977, p.230-249.
83. Ibid p.235.
84. See Hargreaves 1982.
85. Hall 1977.
86. Ibid. Chapters 4 and 11.
87. Ibid p.238.
88. Ibid p.242-5.
89. Ibid p.246-254.
90. EG., a 'new' image of man, the ecological ethic, acceptance of responsibility for the future. See Satin 1979, Ferguson 1981.
91. Hall (op cit) p.245.
92. These are perennial concerns which are unlikely to be resolved. However, they may indicate something of the richness of the 'human conversation'. See 3.2.2 part 3.
93. Skilbeck 1975.
94. Fragnier 1976 p.19.
95. See Hargreaves 1982, Chapter 5, and Watts (Ed) 1977.
96. See Rick Rogers, "The Global School", TES 26-9-1980 p.17.
97. See William Taylor's concise discussion of 'Contraction in Context', in Simon and Taylor (Eds), 1981 p.17-37.
98. See Reynolds and Skilbeck 1976 for a useful summary of this view.
99. Winner 1977, Berger 1976, Barton and Stevenson 1980.
100. EG. see dystopias of Brunner and Compton (noted in Nicholls 1976)
101. This is a central issue in the work of Habermas and Mumford. See in particular Mumford's comment in Michan and Mackey 1972, p.86.
102. See references to human potentials in 4.1.1.
103. Contrasting approaches are taken by Hargreaves 1982 and Charles Taylor 1979, part 2.
104. Schell 1982, p.177. King 1980.
105. This is a major theme in futures writing. It has been treated in detail by Vickers 1970, 1979a. The 'hinge of history' is a phrase used by Barbara Ward 1979, p.266.
106. See Cornish 1977 and 1980b.

4.2.2 Futures Theory into Curriculum Practice

Part One: Aims and Embodiments

1. This refers to the culture map approach to knowledge and the integration of past, present and future.
2. See Peters, T. 1974.
3. See Fragniere 1976, Jouvenal 1967 and section 3.1.
4. Radnitzky 1972.
5. Schwab 1978, p.369.
6. To the extent that they become so, the modelling of change processes may be more readily accomplished.

7. Jeremy Hooper "Studying Wildlife in Deepest Inner London", Guardian 16th February 1981, p.4.
8. EG. Osbourne 1948 and Nicholson 1972.
9. See Linstone 1977 p.5-7 on future discounting.
10. See Ward 1979 .166-170.
11. EG. See Brunner's environmental dystopia "The Sheep Look Up", 1972.
12. See chapter 3.2.2. section 3.
13. For example, the works of Charles Dickens.
14. See Guardian Editorial January 17th 1981 (reproduced in appendix),
15. Morrison 1978, McFaul 1978, Steinbacher 1980 and appendices.
16. Resource files can readily be compiled from papers, magazines etc.
17. See Leach 1970, Harrington 1973, Howard and Rifkin 1977, George 1979
18. Despite accumulating evidence of the costs. See Myers 1979.
19. See notes 10, 11 and 12. Also Walters 1980.
20. See bibliography of Gordon 1980.
21. EG. androids, cryonics, genetic engineering, immortality.
22. Described by Penny Damlo at a Teaching Futures seminar, Toronto 1980.
23. Fitch and Svengalis 1979, chapter 3; Rojas in Toffler 1974 p.217-233.
24. See kauffmann 1976a and 1976b, and Wooddell 1979 and 1981.
25. Toffler's term, 1970 and 1974.
26. Clearly a basic strategy of groups like the CND.
27. Inglehart 1977 provides substantial evidence of such shifts. Ferguson 1981 and Henderson 1978a offer broad interpretations of these.
28. This view is sustained by Fitch and Svengalis 1979 p.48.
29. See Fragniere 1976 on the importance of counselling.
30. Friere's notion of 'conscientisation' is suggestive. See Freire 1972a, 1972b and 1974.
31. Kirschenbaum and Simon in Toffler 1974, p.263-270.
32. Fitch and Svengalis 1979, Chapter 4.
33. See Illich 1978 and Pym 1980 for two views on this subject.
34. Fowles 1977.
35. Seabrook has pursued this theme at length. EG. see Guardian Agenda for 20th July 1981 and 21st August 1982.
36. The writer carried this out with groups of 6th form students in a comprehensive school. The exercise proved popular and stimulating.
37. EG. See Jantsch and Waddington (Eds) 1976.
38. McHale 1976 provides a useful review of the latter.
39. See Carey 1979 and Soule 1981 for contrasting views of these processes.
40. Toffler 1970.
41. See note 18.
42. Another way of putting this is to stress the interdependence of past, present and future. See 3.1.2 and Boulding 1978.
43. See 3.2.2 part 3 and Taylor, C. 1976.
44. See Kekes 1980, chapter 5 on 'Worldviews and Wisdom' which suggests an appropriate methodology.
45. See Schell 1982, p.118-124.
46. Wooddell 1981.
47. See 3.2.3.
48. This represents a merging of two hitherto separate traditions, - three if one includes the curriculum field.
49. This may be regarded as a concise expression of the central purposes of a critical futurist approach to education.
50. See Rule 1978, chapter 7, for an illuminating discussion of problems frequently overlooked by futurists.
51. Conboy (Ed.) provides a useful handbook for this purpose.
52. See Damlo's Four Paradigms of the Future, in appendix.

Part Two: Innovation Problems and Potentials

1. EG. Links between attainment and home background, classroom interactions and questions about equality.
2. See Shipman 1974 and McDonald and Walker 1976, p.127.
3. These may arise at a later stage when more of the essential groundwork in this area has been carried out.
4. See Marien and Ziegler 1972, p.118-126, wherein the authors suggest that future studies may be a 'transdiscipline'.
5. See Chanan and Gilchrist 1974, Chapter 6, and Stenhouse 1975. Chapter 7, especially p.86.
6. Fletcher 1979, Fitch and Svengalis 1979.
7. Fitch and Svengalis 1979, p.74.
8. Stenhouse 1975, p.95-96. Also see Lawton 1980 Chapter 6, and Flude and Parrot 1980.
9. See Fragniere 1976 and Toffler (Ed.) 1974.
10. Skilbeck 1976 p.40.
11. The allocation of specific grants for INSET represents a positive step. But the prospect for regular sabbaticals remains dim. See TES 3-9-1982, p.6.
12. See references in chapter 4.1.1.
13. See Flude and Parrott 1979, p.32, on the professions adherence to a false assumption of stability.
14. Schon 1971, p.51.
15. Flude and Parrott, op cit. p.32.
16. For evidence of the latter see Kumar 1978 and Thomas in appendix.
17. More recent notions of 'personhood' may be worthy of attention. See Markley 1974, and 1976, Robertson 1978, Henderson 1978a and 1981b, and Satin 1979.
18. See Rule 1978, Chapter 7. Also Michael 1978.
19. EG. Those associated with streaming, setting and grading of pupils.
20. EG. A specific association for futures education. See below. Also Cornish 1980b.
21. Eedwards and Kulaweic 1982, p.30. Also see Stock 1977 and Stirewalt 1977.
22. Sometimes through Mode 3 CSEs.
23. One of the themes of the World Studies 8-13 project is "the world tomorrow".
24. EG. English, social studies, drama and moral education.
25. See note 26.
26. Jeffery (et al) 1977.
27. Fletcher 1979, p.40.
28. Suitable materials are available. EG., see the series in the Futurist Vols. 14 and 15 (1980 and 1981)
29. See Ziman 1980and Science, Technology and Society newsletters.
30. See Strudler, quoted in Fletcher 1979, p.43; and Stock 1977, p.14.
31. Stock op cit. p.2.
32. See Wagschal 1980 and Brooks 1981.
33. EG. See Watts 1977, Stenhouse 1975 and Shipman (et al) 1974.
34. Futures can be regarded as the central, integrating theme of school curricula. See chapter 4.1.1. on the Montclair Futures School.
35. This would be naïve and counter-productive. See Skilbeck 1975 on subjects, and Hargreaves 1982 on the need to retain the best of current practice.
36. See chapter 3.2.3.
37. Kogan, "Changes in Perspective". TES 15-1-1980.
38. Boulding 1978, Polak 1961.
39. EG. parents, governors, HMI and LEAs.
40. See Hargreaves 1982 for an interpretation of the effects of examinations. Also Wilby, P. "Exam Results : the real absurdity", Sunday Times, 15-8-1982, and DES 1979oand 1980.
41. EG. Hargreaves op cit. Chapter 6.
42. EG. The future of 'work', 'leisure', values, language etc. See Reynolds and Skilbeck 1976, p.124.
43. This could reflect the concerns of existing proposals (see Ibid.), but re-expressed through a critical futurist frame. See 3.2.3. and 4.2.1.
44. This view cohers well with that expressed by Radnitzky 1972. Also see end of chapter 3.2.2.

45. EG. The Futures Network, World Future Society or World Future Studies Federation.
46. Such organisational support is vital for any broadly-based innovation. The 'institutional shelter' provided by the RSA for the Education for Capability movement is suggestive of what may be needed. See Gorb, P. "Catalyst for Capability", TES 5-2-1982, p.19.
47. See section two, the Global 2,000 Report, 1982, and summary of this in "lifestyles in the Year 2,000", in appendix.
48. See Papert 1981 and Winner 1977.
49. This view owes much to reconstructionist thinking and the notion of school-based curriculum development. See Skilbeck 1976a and 1976b.
50. Jantsch 1978, p.467-8.

Conclusion: Schooling, Education and the Creation of the Future

1. Schell 1982, p.174.
2. EG. Interests in survival, emancipation, undistorted communications. See Habermas 1971.
3. See "Unheard Alarms and the Decline of the Industrial System" in appendix.
4. Schell op cit. p.154.
5. See Radnitsky 1972, and chapter 3.2.2.
6. Schell op cit. p.155.
7. Ibid. p.165-6.
8. For views of such tasks, see Harman 1979, Vickers 1979 and Ferguson 1980.
9. See May 1982 and Henderson 1978.
10. See Lucas 1976 and Margolis 1979.
11. This is a view eloquently expressed in Ward 1979.
12. Wooddell 1979, p.103-5.
13. Erikson, S. Seminar, Toronto 1980.
14. EG. The growth of 'Education otherwise', a network for assisting parents educate their children at home.
15. From a report on the Five Ways Computer Centre, Guardian, 13-7-1982. Also see McHale 1976 and papers by Stonier.
16. See E.M. Forster's "The Machine Stops". Also Abler (et al), 1975 Human Geography in a Shrinking World, Chapter 10.
17. See Skilbeck 1982 for a recent discussion of this issue.
18. See Dalin 1978.

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