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AN EXAMINATION OF THE NATURE AND ROLE OF FIELDWORK IN THE
ENVIRONMENTAL EDUCATION OF PRIMARY PHASE PUPILS IN
CLEVELAND COUNTY

JOHN SINCLAIR WALTON

A thesis submitted for the degree of
Master of Arts in Education

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ABSTRACT

This thesis is concerned with two overlapping domains that constitute the main focus of the study, they are:

- i) the development of Environmental Education in the school curriculum;
- ii) the growth of fieldwork and its influence on Environmental Education.

The study is divided into five main sections. Chapter one briefly explores the definition of Environmental Education, recognising the need to analyse the general stage upon which the specific examination of fieldwork may be presented. Here, organisational influences, from international to local, converge upon bioethical principles. The role of Environmental Education, emerging from this preliminary analysis, leads into chapter two's review of literature that traces its history and development.

The third chapter examines the evolution of fieldwork in primary Environmental Education through its field and urban studies traditions. The role of fieldwork in the primary school curriculum at national level precedes consideration of the influence of local initiatives on its character and provision within Cleveland County.

In chapter four the selection of an evaluation case-study methodology is defended, and a description presented of the design and administration of four progressively focusing stages of fieldwork. Following a parade of opportunity, generated by the collection of school documents, fieldwork proceeds through the employment of questionnaire, semi-structured interview and participant observation techniques.

Analysis of the case-study fieldwork forms chapter five. The presentation of results extend through an examination of emerging patterns into a summary of the total investigation. The nature of environmental fieldwork, in Cleveland's primary-phase schools, is revealed as generally unstructured and heavily dependent upon individual teacher initiative, whilst its varied roles mainly relate to locational and managerial controls.

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INTRODUCTION

'We are now in the presence of another climacteric more dramatic than any the human race has yet experienced. This is the hinge of history at which we stand, the door of the future opening on to a crisis more sudden, more global, more inescapable, and more bewildering than any other encountered by the human species and one which will take decisive shape within the life span of children who are already born'

(Education for Our Future,
Conservation Society, 1973)

The accelerated growth of world population over the last century together with advancing technology have created increasing demands on the environment and the earth's resources. The upsurge in interest and action calling for increased responsibility, dubbed by Max Nicholson the, 'Environmental Revolution', (Max Nicholson, 1970), emphasizes the need for mankind to care for his environment. Many channels have been suggested to promote this global ethic, including the media and the education of specialists.

Enhancement of the public's attitude towards conservation of the environment and its resources is one of the most prevalent goals of Environmental Education programmes, it being assumed that a positive change in attitude will be translated into a corresponding change in behaviour. Environmental Education has been highlighted as an area for special attention by both international and national agencies, and in recent years



there has been a growing awareness of the role which it ought to play in the school curriculum. In particular, the world's first 'Intergovernmental Conference on Environmental Education', which took place at Tbilisi in 1977, included within its 'twelve guiding principles' that Environmental Education should:

'be a continuous lifelong process, beginning at school level

'relate environmental sensitivity, knowledge, problem-solving skills and value classification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years'.

(Tbilisi Report, 1977)

There is considerable debate about the definition of Environmental Education, the width and depth of the concept and how it should be implemented in the school curriculum. The National Association for Environmental Education suggests that:

'At the primary stage Environmental Education is seen as involving pupils in personal experience of the environment by direct exploration with all their senses, using the school and its immediate surrounds and going further afield when necessary. Such environments will involve both the living environment in small nature reserves, school gardens, or in the countryside, and the built environment in streetwork'.

(N.A.E.E., 1976, n.p.)

In terms of implementation the N.A.E.E. statement may be seen as prioritising field-based Environmental Education during the primary-phase. The child's environment with which he has constant interaction clearly being a starting point for education involving use of the

familiar world to encourage the development of concepts, skills and attitudes. The N.A.E.E. statement also elaborates the roles of primary Environmental Education.

'At this stage emphasis should be placed on the development and deepening of concepts. Teachers are expected to use these experiences to develop language in all its aspects, numeracy, scientific methods of enquiry aesthetic appreciation and creative expression, as well as to encourage the development of value judgements and an environmental ethic.'

(ibid)

Environmental fieldwork is presented as of paramount importance in the pursuit of these aims and objectives.

'during this stage all children should have regular experience of working in the field (and street) locally and whenever possible, in a residential situation in a contrasting environment. The focus at this stage should be on the emerging patterns and inter-relationships of environmental features on local and national scales, with an emphasis on conservation and the action of man.'

(N.A.E.E., 1976, n.p.)

Environmental fieldwork by primary schoolchildren is identified as involving the same sequential processes as research in the sciences. Initial observation or inquiry is followed by recording of findings and culminates in analysis and deduction. Such methodology would be equally applicable in urban and rural environments.

It is against this background that a multi-site case-study was undertaken to determine the pattern, extent, quality and roles of environmental fieldwork, and its

place in the Environmental Education curriculum of primary pupils. Following parallel literature reviews, and a critical role analysis of the overlapping domains of Environmental Education and environmental fieldwork, the case-study enlisted help from a selection of the 211 County Cleveland primary-phase schools, (forty five primary, twenty one junior and eighteen infant). Support was also provided by the local education authority, the local institution of higher education, field/urban studies centres and local environmental organisations. Methodological triangulation, achieved through the gathering of documentary evidence from the schools, the response to questionnaire and interview surveys and from engagement in participant observation exercises, builds into an analysis of the fieldwork findings, its observed patterns and limited conclusions.

CHAPTER ONE - THE NATURE AND ROLE OF ENVIRONMENTAL EDUCATION

1.1 Towards a Definition of Environmental Education

Environmental Education has developed as a coalition, perhaps even a coalescence, between trends arising respectively from local studies, from rural studies, from physical education and from conservationism. This coalition of different approaches and emphases has made a definition of Environmental Education complicated. Too frequently the differing methodologies of subject specialists, principally geographers, historians or biologists, in multi-disciplinary or, even, interdisciplinary alignment, have through their subject bias distorted a functional and generally acceptable definition of Environmental Education. Yet as Derricott claims, 'if Environmental Education is to represent a successful coalition, planning to make the necessary synthesis from contributing disciplines is essential!'

(Derricott, 1971)

This view is supported by Martin and Wheeler who urge

'the need to find a solution to the problem of defining the objectives of Environmental Education if it is to be implemented at all levels of school or higher education'

(G C Martin and K Wheeler , 1975, p1)

However, even here the position of Environmental Education within the curriculum has been the cause of some controversy. Some have argued that it should be treated as a separate subject and others that it is a function of the whole curriculum. The HMI consultative document 'Curriculum 11-16' (DES 1979), for example states that Environmental Education is to be regarded as a function of the whole curriculum, and yet the document concludes by saying that both the 'combined' and 'separate-subject' approaches are valid.

1.1.1 The Influence of Conservationism

Further complications have arisen as a result of the growth of conservationism

'the new alignment of the place of man demands action to correct his previous misuse of the planet. Something must be done to create a new respect for our surroundings and society looks to education to play the major part in creating this new attitude of awareness and concern'

(R W Colton, 1971)

Environmental Education after 1968 has been dubbed the 'Environmental Revolution' (Max Nicholson, 1970) because of its concern for lives and landscape. This concern is still evident in the 1980's where Rupert Booth, HMI for Environmental Education in his article, 'Priorities for Environmental Education' sees education as 'needing to change in order to produce the specialised

elites and provide appropriate training' to overcome the consequences of the 'second wave' of environmental change, (the industrial revolution), the 'first wave' having been defined by Alvin Roffler as the agricultural revolution. Booth sees a 'third wave' as being with us 'pushing environmental education' inevitably further into experiential growth' (R Booth, 1983)

The influence of conservation, which became a focus for public awareness in the late 1960's influenced the creation of 'The Environmental Education Act of 1970', (United States of America) which stated

'Sec 2 (a) The Congress of the United States finds that the deterioration of the quality of the Nation's environment and of its ecological balance poses a serious threat to the strength and vitality of the people of the Nation and is in part due to poor understanding of the Nation's environment and of the need for ecological balance; that presently there do not exist adequate resources for educating citizens in these areas, and that concerted efforts in educating citizens about environmental quality and ecological balance are therefore necessary.'

The Act proceeded to define 'Environmental Education' as

'the educational process dealing with man's relationship with his natural and man-made surroundings, and includes the relation of population, pollution, resource allocation and depletion, conservation, transportation, technology, and urban and rural planning to the total human environment'

(ibid)

The implications of this wide reaching definition of Environmental Education has made an impact on formal education within the United States where many educators subscribe to the 'hands on philosophy' of involving students in the learning process 'through investigations of their surroundings in problem-solving situations' (G S Ludwig, 1980, p10).

Conservation education and Environmental Education were regarded as synonymous terms until 1970 when at the Leicester Conference, Phillips pointed out that, 'conservation interpreted as by, for and on behalf of the middle classes made a poor motto for a movement which was supposed to be of urgent concern to the whole of mankind' (J D Carthy, 1972, P22)

1.1.2 International Influences: Nevada, Belgrade and Tbilisi.

A frequently quoted definition for Environmental Education was formulated at the 1970 Nevada Conference held by the International Union for Conservation of Nature and Natural Resources (IUCN).

'Environmental Education is the process of recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man, his culture, and his biophysical surroundings. Environmental Education also entails practice in decision making and self-formulation of a code of

behaviour about issues concerning environmental quality'.

(IUCN, Nevada, 1970)

Four years later in a Geographical Association discussion paper came the suggestion that the IUCN definition may be rephrased to 'give greater emphasis to the human and spatial aspects'.

The rephrased definition read:

'Environmental Education is concerned with the intellectual and practical study of man and his relationships with all aspects, (biological, cultural, economic, physical and artificial), of his environment on local, regional and world scales. It includes the making of decisions and the formulation of codes of behaviour concerning environmental planning and quality'

(Geographical Association, 1974).

In this context, whilst geographers saw their contribution to Environmental Education as being in particular skills, they acknowledged viewpoints complementary to those of other specialists in an inter-disciplinary study

In 1975 the United Nations Educational, Scientific and Cultural Organisation, (UNESCO), whilst strengthening the bioethical emphases, accepted the IUCN definition. Both 'technocentric' and 'ecocentric' modes of behaviour were examined in this International Environmental Workshop held at Belgrade. Their restated definition was issued in 1977.

'To foster clear awareness of and concern about economic, social, political and ecological interdependence in urban and rural areas; to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment; to create new patterns of behaviour of individuals, groups and society as a whole towards the environment'

(Belgrade Charter, UNESCO, 1977)

The International Environmental Workshop at Belgrade promulgated the need to educate youth to care for the environment in the establishment of a new 'global ethic' which would, 'require new and productive relationships between students and teachers, between schools and communities, and between the education system and society at large'. (Connect, January 1976) Selim suggests that the definition issued in the Belgrade Charter makes Environmental Education the concern of teachers of all subjects, but mainly those of Geography and Social Science and to a lesser extent Language and Arts'. (S. Selim, 1977)

The National Association for Environmental Education (NAEE) also adopted the IUCN's definition of Environmental Education at their annual general meeting held in September 1976. In their booklet, 'Environmental Education a Statement of Aims' they declare,

'Throughout primary and secondary education, the human environment, both rural and urban, should be regarded as a continuum from the wilderness, through the productive countryside, small

settlements and suburbs, to the heart of the inner city'

(NAEE, 1976)

Bioethical principles were similarly embodied in the Scottish Environmental Education Committees, (SEEC), statement issued in 1977.

'The aim of Environmental Education is to enable people to recognise the factors which determine the nature and quality of the human environment so that all may respect and appreciate it to the full and participate constructively, as individuals and as citizens, in its management and development'

(SEEC, 1977)

In March, 1977, the Schools Council paper entitled, 'Learning and Teaching Schemes in Environmental Education', presented a shortened version of the IUCN's definition.

'Environmental Education is concerned with the relationship between man, his culture and his physical surroundings. It also entails practice in decision making and in formulating one's own code of behaviour about issues concerning quality'.

(Schools Council, 1977)

The Intergovernmental Conference on Environmental Education, organised by UNESCO/UNEP and held at Tbilisi in October, 1977 culminated in the presentation of a 'Declaration' in which Environmental Education was seen as,

'constituting a comprehensive lifelong education, one responsive to changes in a rapidly changing world. It should prepare the individual for life through an understanding of the major problems of the contemporary world,

and the provision of skills and attributes needed to play a productive role towards improving life and protecting the environment with due regard given to ethical values'

The nature of Environmental Education was further embellished by consideration of teaching methodology and strategies.

'By adopting a holistic approach, rooted in a broad inter-disciplinary base, it recreates an overall perspective which acknowledges the fact that natural environment and man-made environment are profoundly interdependent'

(ibid)

Within the 'General Report' the conference consolidated their definition by commenting that

'Environmental Education should not be just one more subject to add to existing programmes but should be incorporated into programmes intended for all learners'

(D Hughes-Evans & S Carson, 1978, p10)

The General Report gave support to interdisciplinarity and to a practical education oriented towards problem solving and promoting unity amongst curriculum areas believing that

'Environmental Education should not give rise to 'competition' with the various subjects at present in the curriculum; it should represent a means of introducing a certain unity into the education process in the minds of pupils and enable them to manage the environment in which they live through the judicious use of resources'

(ibid, p10)

1.1.3 Definition and the School Curriculum

In 1981 The Department of Education and Science, (DES), published 'Environmental Education : A Review' (HMSO, 1981) in which they outlined chronologically a range of definitions of Environmental Education. They concluded that the definitions had much in common, but almost always in terms of broad generalisations. Lack of definition of detail was explained as being 'inevitable because of the sheer complexity, (and often controversial nature), of many of the specific issues involved' (DES, 1981, p6) The DES considered the potential conflict between conservation and development as being the most fundamental of the problems and saw the task of education as being the development of a 'rational basis for the study of the environment - natural, built and cultural ...' and the need to 'equip people to make up their own minds in an informed way' (ibid p6-7). In their summary the DES paraphrased a definition of Environmental Education from an HMI's Schools discussion document, 'Curriculum 11-16', (DES 1977).

'Environmental Education is ultimately about helping people to choose wisely and act considerately, whether as individuals, citizens or members of the world community - that global village in which we are all part of one another. It is a life long and many-sided process in which every educationist has a proper role to play.

(HMI, 1977)

The original paper which 'regarded Environmental Education ... as a function of the whole curriculum, formal and informal', anticipated contributions coming mainly from 'biological, physical, earth and rural science, and from geography, history and art, (including architecture), but this is not an exclusive list'. (ibid).

The 'Curriculum from 5 to 16' published in 1985 gives as their definition of Environmental Education,

'education which can help pupils to develop an awareness, appreciation and understanding of their surroundings may be presented through science, history and geography for example, or can act as a unifying approach for work in and out of school in several subjects and curriculum areas'

(Curriculum Matters 2, DES, 1985, p13)

As well as providing considerable support for conservation and bioethical considerations and specified subject methodologies the 'Curriculum from 5 to 16' document extends its concern into the aesthetic, spiritual and technological roles of Environmental Education and its fieldwork strategies.

Whilst the definitions of Environmental Education, given above, represent ever evolving shades of meaning a distinction can be drawn between

Environmental Education and Environmental Studies/Science. The latter may 'draw material from a variety of subjects without imposing any discipline of approach to the information'. (G.A., 1974, op.cit) Further to this the distinguishing characteristic of Environmental Education as defined by UNESCO, (Connect 1978), is its ethical content. Here the need for the individual to live according to what has been learnt is considered to be of equal importance to the content of the studies, and is embodied in the definitions presented above. Bioethics are therefore of paramount importance in the definition of Environmental Education whether ultimately that definition leads to the regard of Environmental Education either as a method or a subject, i.e. influencing the teaching of specific disciplines, or, involving the grouping of certain components of the whole curriculum and combining the skills of a number of specialists. The development of an environmental ethic involves nurturing awareness, responsibility and realistic attitudes. Darke states 'that to ignore values implies uncritical acceptance of current values, and the status quo. The development of an ethic lies in purposeful involvement.' (J Darke, 1977).

1.1.4 Environmental Education within Cleveland LEA

Environmental Education, with its various shades of meaning, continues to evolve at both national and international levels and its impact upon the policies of local education authorities has followed the pattern of evolvement shown above. In 1979 the Cleveland Local Education Authority published their 'Curriculum Review'. Document. Q.1.(part) set out the LEA's environmental policy for the primary phase. Whilst the terminology focused upon environmental studies an examination of the stated philosophy, subject inter-relationships and the aims and objectives of the work can be drawn into a definition of Environmental Education as,

'an inter-disciplinary study using the child's world as a basis for the development of skills, attitudes and concepts whilst at the same time widening their recognition and appreciation of the world around them'

(Cleveland County, 1979, p1)

The Curriculum Review panel emphasised bioethical concern believing that environmental study 'is the ideal vehicle for the support and enrichment of all subjects resulting in a much wider and more richly experienced child better fitted for, and in greater sympathy with, the world he is about to enter' (ibid p1). Similarly the Review advocates 'an

attitude of enlightened concern for the existing environment, its history and its future' (ibid p6).

Greater reference to the Cleveland County Curriculum Review will be made in later sections of this work considering the role of Environmental Education and the examination of current practices in Cleveland primary schools.

1.2 The Role of Environmental Education

1.2.1 About, From, In and For the Environment

Whilst there is a current emphasis on Environmental Education to meet the needs of society, there is a long tradition in this country of using surroundings as a basis for learning, characterised as education either 'about', 'from', 'for' or 'in' the environment. Initially the Schools Council's 'Project Environment', 1973, expressed these approaches to Environmental Education as,

'The environment as a medium for education - the use of real life situations as the basis for learning; the environment as a subject for investigation; education for conserving or improving the environment - the study of topical problems such as conservation, pollution, population - and the attempt to promote a sense of personal responsibility'

(Schools Council, 1973).

The DES translated these categories respectively into - education 'through' the environment, education 'about' the environment and education 'for' conservation. (DES, 1981, p5). They regarded the first of the two categories as providing the main starting points for formal education. At the primary phase the DES considered that Environmental Education amounted to 'using the environment as a means of offering direct and immediate experience from which particular skills and other attributes may be acquired' (loc cit). Here emphasis would be

placed upon child development through the method of teaching and learning.

The environmental approach to education was seen as requiring the integration of three basic features: education 'in', 'about' and 'for' the environment in 'The Conservation and Development Programme for the U.K. (CDPU 1983, pp445-446). The three approaches include subtle variations from those given by the Schools Council, laying, as they do, emphasis upon conservation and the development of an environmental ethic. Thus education 'in' the environment is seen as,

'the environment providing a resource for the acquisition of relevant knowledge and skills, the development of feelings of concern for an appreciation of the environment, and the opportunity to participate in practical activities in the environment'

The overriding concern for the environment shown in this statement is absent from most others using study, or learning, 'in' the environment as one of their approaches. Usually study 'in' the environment is concerned with learning how to learn using the environment to provide the stimulus. Here the emphasis would be placed upon educational objectives.

The CDPU's definition of education 'about' the environment presents a similar bioethical slant.

'Knowledge about environmental systems is essential for informed debate about how humans should use the environment. It includes learning about the various social, economic and political factors that influence decisions about its use'

(CDPU, 1983, p446)

Support for the basis of this statement may be found amongst most writings where study 'about' the environment is seen as a largely content dominated approach. Here the aim would be to discover the nature of the area or topic under study, often through scientific investigatory and discovery approaches; the objectives being chiefly cognitive.

There is a widely agreed desirability of giving children an opportunity to learn from real situations rather than exclusively from the spoken work or printed page. In educating 'from' the environment teachers have sought to forward the general education of the child by using the environment as a resource, if you like, a laboratory, firstly as a medium for enquiry and discovery which may lead to the enhancement of the learning process, and secondly as a source of material for realistic activities in subject areas. Educating 'from' the environment provides field work opportunities in related subject areas, such as, Biology, Geography and History.

Education 'for' the environment is a major facet of most of the modern definitions of Environmental Education, certainly those presented in the post 'Silent Spring' (R Carson, 1962) period and the subsequent 'Environmental Revolution' era (M Nicholson, 1970). The conflicts between man and his environment, currently being perceived, have brought to the forefront a need to educate 'for' the environment. That is, education which is environmental in style with an emphasis on developing an informed concern for environment. This would require a total view of the environment including an understanding of its interdependence, with aesthetic and ethical values. Thus, the aim is to develop attitudes and levels of understanding which lead to a personal environmental ethic, that is, so to educate pupils that their actions and influence or collective action will be positively for the benefit of the environment. The CDPU sees this as 'adopting a personal code of conduct that ensures that decisions and actions support conservation objectives' (CDPU, 1983, p446)

These categories are by no means mutually exclusive. One cannot learn 'from' one's surroundings without learning something 'about' them. The present emergence of Environmental Education has come about largely through the need to develop a society which not only understands

something about the environment, is aware of the importance to man of a healthy environment and of the threats to it of irresponsible actions, but which also feels a responsibility towards it. In primary schools, therefore, the early interest in learning from environment and studies 'about' environment are to be encouraged to lead on to a responsibility 'for' environment. The NAEF express the view that,

'in parallel with increasing environmental knowledge and skills throughout the whole of a pupil's school life there should be developed education for the environment'

(NAEF, 1976, np)

The theme of, 'developing education for the environment', raises the social and moral roles of Environmental Education. If Bloom's view that 'the ultimate educational objective in the affective domain is the development of moral commitment' (B S Bloom, et al, 1964) is upheld, then the development of moral responsibility cannot be left to grow automatically from the presentation of facts, but rather the acquisition of moral attitudes must be independently pursued. Here Huckle's division of educational ideologies into three sections: 'Classical/Traditional; Progressive/Romantic and Radical/Reconstructive', (Huckle, J 1980) has relevance for the social and moral roles of Environmental Education. Environmental studies he places into the 'Progressive/Romantic' ideological

classification, seeing this as a phase in which child-centred studies fueling imagination, feeling, interest and self-fulfillment predominate. By contrast Environmental Education is placed in the 'Radical/Reconstruction' category where some of his 'key words' are 'social reconstruction, transformation, critical awareness, reflective thinking, experience, action and justice' (ibid). Huckle advocates pupil involvement in environmental concerns, encouraging them to see themselves as 'doers'. He perceives bioethical actions such as the removal of litter as being a 'powerful prompt to changes in values and attitudes'. His view is supported by HMI who believe there to be,

'an implicit progression from learning which is mainly directed towards personal development to learning which increasingly takes into account the needs of society'

(HMI, Curriculum 11-16, 1979)

Environmental Education is therefore not restricted to a world of objects but extends into a world of values. The moral purpose of Environmental Education being to enable pupils to understand these values.

1.2.2 The Role of Environmental Education in the Primary Phase

The DES belief that education 'through' the environment and education 'about' the environment 'provides the main starting points for formal

educational activities', (DES, 1981, p5), is shared by most environmental educationists especially when the review proceeds to suggest that, 'Environmental Education' with younger pupils amounts to offering direct and immediate experience from which particular skills and other attributes may be acquired' (ibid p5). Here the four goals are, 'awareness', 'competence', 'understanding' and 'concern'. Aesthetic development, a necessary role of Environmental Education in the primary phase, the DES suggest

'can proceed only from a training in observing and listening, in responding to experience with all the senses and in appreciating form, texture, colour, pattern and association in all things'

(ibid, p7)

The DES ignores a description of subject matter in the list of goals believing that

'Whatever subject matter is chosen, it is most important to convey the realisation that environmental systems are complex and their problems are not susceptible to easy answers'.

(ibid, p7)

Awareness is a major concern of the educationist at the primary phase in the promotion of discrimination through the use, and development, of observation. Awareness is not only an important role of Environmental Education in terms of personal enjoyment, but it is also a necessity, 'for the development of environmentally responsive

and responsible society'. (DES, 1977, p27). In this way surroundings may be viewed with an appreciative, yet a critical eye. 'Such awareness is a prerequisite of aesthetic development ... and provides the necessary basis for first hand learning' (loc cit).

To achieve good understanding of environmental matters the DES (op cit) dismisses the employment of separate subject approaches in favour of subject integration and cooperative teaching methods. The use of fieldwork techniques is proposed as the main stimulus for the acquisition of physical skills. Here skills do not stand alone but rather are interrelated with 'opportunities to acquire the knowledge, values, attitudes and commitment needed to protect and improve the environment' (HMI, 1977). The Association for Science Education similarly encourages the teacher to develop an awareness in children that decisions about the environment involve consideration of value judgements (ASE, 1974). This is an important consideration if Environmental Education is not to evolve as a form of social control. The objectives of 5/13 Science, 'With Objectives in Mind', actually state that attitudes of objective judgement can be established in children at an early age. The clarification of values being 'linked to the encouragement of

respect for evidence, objectivity and tolerance'
(HMSO, 1981)

Derricott supported the need to increase understanding through Environmental Education believing its principal roles to be, 'increasing understanding of and sensitivity towards the physical, social and economic, aesthetic and moral aspects of the environment'. (R Derricott, 1971, p2). Marsden in his review of environmental courses in Colleges of Education found the social and economic component of Environmental Education to be neglected in preparation for teaching in the primary and middle school phases (W E Marsden, 1971). His campaign to rectify this omission received support from Derricott who stated, 'In my view the social and economic component of Environmental Education is an important one at any level' (R Derricott, op cit). Further support was incorporated in the Lawton Report, (Schools Council Working Paper No 39, 1971), whose recommendations were partially responsible for the setting up of the History, Geography and Social Science, 8-13 Project. The social and economic component of Environmental Education was encouraged to include international considerations, as expressed by Derricott,

'the social and economic component of Environmental Education should not only consider developing attitudes towards the 3 P's (Population, Pollution and Poverty), but also other issues which are going to loom large in the lives of children ... for example China, Europe and the Third World'

(R Derricott, 1971, p5)

The moral role of Environmental Education has too frequently been introduced to pupils at a late stage in their formal education, teachers believing that children in their early years at school do not possess the necessary emotional or intellectual capacity to explore their reactions to environmental phenomena in terms of feelings and values. In this context Midwinter urged schools to provide a balanced viewpoint at an early stage and suggested that, 'the major factor alienating the school from its social context is the curriculum' (E C Midwinter, 1971) Fourteen years later HMI reported that 'because so much moral education is carried on incidentally in school, there is a temptation to assume that school life and the normal programme of work will produce a sufficiently broad range of experience' (DES, 1985, Curriculum Matters 2, p27). HMI believe schools need to examine what they provide intentionally as well as what arises incidentally and list as one of their priorities

'In topic and project work pupils may need to consider the motivation of people in the recent and more distant past, and there, as in science and geography, pupils will begin to meet the questions of social morality which are involved

in such matters as man's responsibility for the environment'

(DES, 1985, pp26-27)

The role of Environmental Education many believe cannot be realised through time-tabling it, in school, as a subject. Derricott saw a danger that Environmental Education could be given such a wide interpretation that children are bombarded with a series of loosely connected or totally unconnected topics which are treated superficially. 'Wholeness is the keynote of the integrationist's approach and artificial is used in a pejorative sense to describe subject barriers'. (R Derricott, 1971, p4). Whitehead offered support to this view when, with Environmental Education in mind, he wrote,

'let the main ideas which are introduced into a child's education be few and important and let them be thrown into every possible combination'.

(A M Whitehead, 1955, p3).

HMI, in their series, Curriculum Matters, have to date not produced an environmental booklet, but in 'Curriculum Matters 7 : Geography from 5 to 16', (DES, 1986) they recognise that,

'During the early years of the primary phase much of the curriculum is more likely to be organised around activities and topics than in the form of subjects'

and that

'At this stage the most appropriate learning is through first-hand experience and observation'

with

'a great deal of learning serving to increase pupils' environmental awareness and understanding'

(DES, 1986, Curriculum Matters 7, p5)

Amongst the roles the HMI perceive for Environmental Education in the early primary phase are experiences that will enable pupils to,

'extend their awareness of, and develop their interest in their surroundings;

observe accurately and develop simple skills of enquiry;

identify and explore features of the local environment;

recognise and investigate changes taking place in the local area;

extend and refine their vocabulary and develop language skills;

develop mathematical concepts and number skills;

develop their competence to communicate in a variety of forms including pictures, drawings, simple diagrams and maps'

(DES, 1986, p5-6)

The selection of these objectives are included in the text, at length, as they form an important basis for comparison and contrast with findings from the local area shown in the analytical section of the dissertation. (Chapter 5).

1.2.3 The Bioethical Role of Environmental Education

Apart from the development of skills and acquisition of knowledge proposed by HMI there are valuable other roles for Environmental Education

which they see as extending from the early phase into the latter stages of primary education. The human aspect is explored through the need to,

'understand some of the ways in which the local environment affects people's lives';

and to,

'gain some understanding of the different contributions which a variety of individuals and services make to the life of the local community'.

(DES, 1986, p5-6)

Amongst the four different aspects of Environmental Education identified by Watts, are included education about 'the child's neighbourhood and the wider world'. (D G Watts, 1969). HMI consider that a role of Environmental Education during the later stages of primary schooling is to explore and

'investigate at first-hand features of their local environment ... and some of the activities of its inhabitants ... and to study some aspects of life and conditions in a number of other small areas in Britain and abroad, which provide comparisons with their own locality. From such studies pupils should gain knowledge and understanding of some of the ways in which people have used, modified and cared for their surroundings.'

(DES, 1986, p11)

The first sentence from this reference relates to a further important role of Environmental Education, namely to demonstrate concern for the environment, which, as shown previously is a distinguishing feature incorporated within definitions of Environmental Education which separates them from

environmental studies/science. The HMI identified the need to 'create new patterns of behaviour of individuals towards the environment'. (HMI, 1977). Recognising the need to create an influence by Environmental Education on behaviour through the cultivation of qualities which would need to be stimulated and sustained particularly through first-hand experience. The HMI believed that the quality of the environment may be awakened and built upon the goals of 'awareness, competence and understanding', and that 'many see the ultimate purpose of Environmental Education as being ethical' (HMI, 1977, p27). Simulation, role-play and computer-assisted learning exercises, which have undergone considerable development in the past decade, frequently focus on concern for the environment and many of these are designed for use at the primary phase and have proved to be most effective

'Here teachers have been involved in looking increasingly not only for other sources, and resource but also alternative methods' ... which would emphasize 'the ability to participate in social relationships within small groups; the ability to exercise empathy and the ability to communicate findings through an appropriate medium'

(G Elliott et al, 1975, p6).

HMI advocate the use of gaming, simulation and computer assisted learning realising that these, 'help pupils to use their imagination and develop their understanding of cause and effect'. (DES,

History in the Primary and Secondary Years: an HMI view, 1985, p38). Psychomotor skills, the non-verbal, kinaesthetic approach to learning about the environment is at present relatively uncharted. Important concepts such as conflict, or differences between people may be fruitfully introduced during the primary phase through movement and drama with source material collated, and inspiration gained, during fieldwork activities.

As with the definitions of Environmental Education, examined above, conservationists have been active in the description of its role, seeing the ultimate objective as

'developing among humans the will and ability to act as responsible stewards of the environment, be it natural, partly modified or totally artificially created'

(CDPU, 1983, p445)

Translated into school focused activities this overall aim of Environmental Education, which largely mirrors the roles formulated in the HMI working paper should:

- '(a) create sensitivity to and awareness of the total environment;
- (b) help develop a basic understanding of the total environment and the interrelationship between humans and the environment, so that they may more easily appreciate why conservation is fundamental to human survival and well being;

- (c) help develop the skills to investigate the environment and to identify and solve actual and potential environmental problems;
- (d) promote the acquisition of strong feelings of concern for the environment;
- (e) help pupils identify alternative approaches and make informed decisions about the environment based on all the relevant factors - ecological, political, economic, social and aesthetic;
- (f) motivate pupils to participate actively in environmental improvement and protection and provide them with opportunities to be actively involved in working towards the resolution of environmental problems;
- (g) help pupils appreciate and enjoy their environment'

(CDPU, 1983, p445)

This passage has been quoted at length as an examination of these roles of Environmental Education, as they relate to fieldwork in the primary phase of education, is located in the following research section forming a basis for comparison with roles specified in the Cleveland County Curriculum Review, (1979).

The details of environmental curriculum content listed by the DES in the document 'Environmental Education : A Review' (DES, 1981), complement those printed above.

1.2.4 The Role of Environmental Education in Cleveland's Primary Schools

In the Primary Environmental Studies section of the Cleveland County 'Curriculum Review' document

(CCCR, 1979, Q1), the representatives of the Cleveland LEA outline the functional roles of Environmental Education. They give as a primary aim the need 'to help children understand processes which shape their surroundings', (CCCR, 1979, p2). The CCCR representatives 'hoped' that through 'improved understanding' of the 'factors governing the development of their surroundings that the children, as adults, will be able to become involved in the decisions which will affect their environment' (ibid). Accomplishment of these aims they suggest will only be achieved through subject integration as 'Geographical, Historical and Scientific aspects are so closely interrelated that separation would be artificial and distort perspective'. (ibid).

A further role for Environmental Education is that of attitude formation. Here the CCCR identifies four categories:

- '1. Children to children. An attitude of co-operation and understanding of each other, especially those who differ in colour, creed, ability or background.
2. Children to environment. An attitude of enlightened concern for the existing environment, its History and its future.
3. Children to learning. A positive inquisitive-persistent attitude towards learning, and in the search for answers.
4. Children to teacher. A mutual understanding and respect for each other'

More specifically the CCCR document lists the roles Environmental Education should generate in the education of primary phase pupils in Cleveland schools and the basic, intellectual, practical and study skills that should be evolved. These lists are referred to in chapter 3 and are presented in appendix A.

CHAPTER TWO - THE HISTORY AND DEVELOPMENT OF ENVIRONMENTAL EDUCATION

2.1 The Emergence of Environmental Education

D G Watts identifies J Locke's 'Essay Concerning Human Understanding', (1690) as 'the beginning of interest in using the environment', (D G Watts, 1969, p21), from which time ideas have developed along three paths which, while in essence, representing different approaches, are difficult to separate because of their inter-related features.

2.1.1 Developmental Paths

The first path was that of **epistemology**, studying the nature of knowledge, where three models were identified. The 'input' model - Knowledge from external stimuli; the 'output' model - knowledge resulting from within the individual; and the 'interaction' model - knowledge resulting from the interaction of the mind and the environment. J F Herbart (1776-1841) a German philosopher inferred that sensory experience was important, and relevant work was to be undertaken based on the child's familiar environment. Catherine Dodd (1898) wrote in support of Herbart advocating the use of stimuli under the child's observation. Charles Darwin's book 'The Origin of the Species', (1859), emphasized the evolution of the human intellectual

structure from interaction with the environment. In contrast, W James in 'Principles of Psychology', (1890) and its abridgement, 'Psychology' (1907) wrote that nothing was exactly known of the changes in the nervous system that supposedly accompanied environmental learning. J Adams 'Herbartian Psychology Applied to Education' (1897) and J E Adamson 'The Individual and the Environment', (1921) described the environmental conditions as absorbing and absorbed by the environment. The epistemological view has been powerfully reiterated by Piaget who has provided both a theoretical framework and empirical evidence for the long held belief that 'learning should progress from the particular to the general'. (J Piaget, 1962)

The second direction of thought was via **philosophy**. Kant's (1724-1804) interactionist theories according to which mind or matter were engaged in a continuous and necessary process of interaction, were elaborated by F Hegel (1770-1831) and a theory of idealism emerged having far reaching effects on education and in particular on the child's relationship with his environment. Nature was seen as the means through which the mind realised a higher spiritual existence. Life was the 'thesis', the environment was the 'antithesis', and the mind was the necessary 'synthesis' of the process of education. Experience 'from' the environment was

identified as a principle of human development. J H Pestalozzi (1746-1827) advocated teacher learning via observation and self-guided practice to help pupils learn by the same methods. F Froebel (1782-1852), a follower of Herbart and Pestalozzi, saw God as the source of all things. To understand the nature of things depended on their study in their natural surroundings. He equated progressive education with, activity, personal discovery, integration and concrete experience, with the teacher acting as a guide. By contrast J Dewey (1859-1952) was more concerned with the interrelated aspect of education and society and many of his views are evident in present-day Environmental Education.

The third perspective was that of '**Naturalism**' as advocated by J J Rousseau in his work, 'Emile' (1763). Emile became nature's pupil. Pestalozzi also promoted the idea of the mind searching out the features of the environment which harmonized and contributed to its own, natural development. Here William Wordsworth was an influential figure in the cultural-aesthetic tradition of Environmental Education. He saw the environment in a 'personal way, communicating with him, and his task as an interpreter to pass on its messages to others'. (I Mills, 1981). Wordsworth also had a genuine concern for Environmental Education. In 'Prelude' he describes

'the growth of his mind through interaction with the environment in which he lived ... He saw the poem as setting out some of the principles by which the minds of others could grow as well'

(ibid, p23)

Wordsworth's writings to the Committee of Council on Education, written over one hundred and fifty years ago, draw attention to principles which todays environmental educationalists and fieldworkers need to absorb.

'Let me ask you, dear Sir, whether ... too little value is not set upon the occupations of children out of doors ... Is not the knowledge inculcated by the teacher, or derived under his management, from books, too exclusively dwelt upon, so as almost to put out of sight, that which comes without being sought for, from intercourse with nature and from experience in actual employments?'

(P Coveney, 1967, p 83)

Wordsworth's support of 'naturalism' evoked an 'attack' on certain forms of science. In a letter to W R Hamilton, Professor of Astronomy at Trinity College, Dublin, he wrote;

'science as a mere accumulation of facts, and above all science which waged war on the imagination was worse than useless. Science is imperative, but it is handicapped insofar as it stresses the general at the expense of the particular, detached observation at the expense of personal involvement, and underlying theory rather than the unique real world. For practical manipulation of the environment we need as much scientific knowledge as we can get. But not science per se'

(A B Grosert, 1876, p167).

During the early part of the twentieth century the naturalistic strand was systemised by geographers and others who, through the Le Play Society, founded in 1902 by Patrick Geddes, attempted to integrate Geography, Economics and Anthropology using the medium of fieldwork. Geddes was concerned with Environmental Education both for its educational value and also for the part which it could play in improving the quality of the environment. He wanted to use education for the purpose of making towns and cities beautiful and functional places to live in, being appalled by the overpowering growth of conurbations in Britain. Geddes argued

'that a child brought into contact with the profound realities of his environment would not only be able to learn better, but also develop a creative attitude towards his surroundings'

(G C Martin and K Wheeler, 1975, p4)

The Le Play Society approach is set out in, 'An Introduction to Regional Surveying' (C C Fagg and G E Hutchings, 1930) which Martin and Wheeler regard as 'the prototype of educational fieldwork'. (Martin and Wheeler, op cit)

2.1.2 The Movement for Rural Education

Alongside the concern for the urban environment there grew up in England a movement for **Rural Education** which was also to influence Environmental

Education. Rural Studies which developed in country schools from about 1910 were mainly concerned with the scientific investigation of natural phenomena. Gradually these attitudes were extended to encourage and stimulate learning in other areas of knowledge, including science, geography and history. After World War I 'Rural Studies' in schools were incorporating soil, plant and landscape analysis, their ecological relationships and the effects of man's activities. In 1926 the Board of Education published 'Rural Education' praising teaching which included studies of local features, resources and occupations. This was followed in 1927 by their publication of a 'Handbook of Suggestions for Teachers, (HMSO, 1927), in which they stated that

'every child should know the history of his own town or village using visits to local relict features to create atmosphere and make history live'

(G A Perry et al, 1968, p10)

A reaction against the didactic methods of eighteenth and nineteenth century education was embodied in the '**Progressive**' or '**New Education**' early in the twentieth century. This movement advocated the use of observable, tangible objects and the

'evolution of curricula from the developing interests of the child, interests which often lay in his life outside the school'

(Hadow, DES, 1931)

In this 'Report of the Consultative committee on the Primary School (Hadow), children were now viewed as participants in learning actively, whereas instruction by the teacher was seen as inferior to observation, experiment and discovery by the pupil. The Hadow Report further recommended what it called, 'the project method' and 'centres of interest' for multi-disciplinary work in the primary school. (Hadow, 1931, para 75, p75, and para 84, p82). Hadow also referred to the importance of first-hand experience in the teaching of Geography and Nature Study. Unfortunately, as the preface to the 1948 Revised Edition notes, the Hadow Report had only slight impact on schools (Ministry of Education, 1948).

In 'Education and the Countryside' (HMSO, 1934) two reasons for using the environment with children were identified, particularly in rural areas. The first was the child's interest in processes going on around them, and the second, the provision of interest and enjoyment that the environment could provide in later life. This handbook was supplemented by a second in 1937 which encouraged the use of historical, geographical and scientific possibilities around the school.

'Actuality in the School' (C J Cons and C Fletcher, 1938) is regarded as another work of importance in

the evolution of Environmental Education. This work complimented the role of fieldwork by bringing members of the public, such as policemen, firemen and clergy, into the classroom for interview by the pupils. The theme of citizenship, extending into concern for the environment, formed the basis of 'The School Looks Around', (E Layton and J B White, 1948). Layton and White argued that the multi-disciplinary local survey is an essential part of any education in which education for citizenship is a significant aim.

Curriculum development within and between the environmental subjects in primary school education benefitted from two interrelated changes in the nineteen fifties and sixties. Namely the gradual disappearance of the formal 'eleven-plus' examination and the development of multi-disciplinary work in teacher education courses. Philips and McInnes recommended new attitudes to primary Environmental Education so that

'the child's thirst for knowledge and experience of the world around them (would be) the basis of much of their learning ... We must get away from the study of the environment in subject terms'

(H Philips and P J C McInnes, 1950, p9)

Many schools had already developed this form of using the local environment and the fieldwork activities that claimed an important part of the

teaching and learning here, is confirmed in 'An Experiment in Education' (S Marshall, 1963) and 'Village School' (Miss Read, 1955).

2.1.3 Professional Encouragement for Environmental Fieldwork

A survey of Colleges using multi-disciplinary approaches within teacher-training courses, held in 1968, revealed that sixty Colleges of Education offered professional training in environmental studies or environmental science, with ten offering these at 'main' course level. Two years later a follow-up survey indicated substantial growth, with at least twenty Colleges offering environmental 'main' courses, ten of which contributed towards a B.Ed degree. (G Martin, 1972, pp19-26). Another measure of the quickening interest in the study of the environment in this country can be obtained by perusal of the Library Association's, 'British Education Index', series for the 1960-70's. These reveal a total lack of articles listed under the Environmental Education 'umbrella' (studies, science, education) before 1964. The growth in numbers of such publications would appear to support Max Nicholson's selection of the growth period after 1968 being dubbed the 'Environmental Revolution' (Max Nicholson, 1970). ie the number of articles published annually during this period grew thus: 1963 - nil; 1964/5 - one; 1966/7 - one;

1968/9 - six; 1970/1 - seven and 1972/3 - fifteen. The first book with 'Environmental Studies' in its title was only published in 1968 and resulted from interest shown by the Nuffield foundation, 'Resources for Learning' Project begun in 1966.

Governmental and Advisory council reports, HMI documents and school circulars flourished in the late 1960's and early 1970's and were paralleled by a similar growth in numbers of professional bodies committed to the study of, and concern for, the environment. The Gittins Report, 'Primary Education in Scotland' (HMSO, 1965) and the Wheatley Report, 'Primary Education in Wales (HMSO 1967), both made recommendations that were to influence primary environmental work as they stressed the need to study the environment through integrated activities, that should provide the core of primary school history and geography. The Plowden Report, 'children and their Primary Schools', (HMSO, 1967), whilst still analysing the curriculum under the traditional subject headings, did emphasize that primary schools should make full use of the local - and indeed the not so local environment. The use of fieldwork was further enhanced by Plowden's urging to 'harness the intense interest shown by children in the world around them' and to employ their 'natural urge to explore and discover' (ibid para 530, p195).

Subject integration was also supported. 'some work, at least, should cut across subject divisions at all stages in the primary school', (ibid, para 535, p197) and first-hand evidence and experience were to be used. The Plowden Committee's findings also drew urgent attention to the need to expand the provision of in-service training for teachers and to increase the provision of reference materials and aids to cater for these developments. In 1967 the Welsh Committee of the School's Council set up a three years 'Curriculum Development Programme' to:

- 'a) investigate, with regard to feasibility and value, differing techniques to be used by teachers and pupils in first-hand study of the features of their environment;
- b) develop such techniques with a view to making them available to a wide spectrum of teachers in the age-range 5-13;
- c) disseminate such findings as are considered of value to teachers and persons concerned with the education and advising of teachers'.

(School Council - Project on
Environmental Studies 5-13, nd)

The work of the 'programme' was confined to Welsh Schools between 1967 and 1970 and only extended to a number of English LEA's schools in 1970-71. The findings of the 'programme', whilst focusing on environmental studies, has its implications for developing fieldwork within Environmental Education. Environmental Studies was not to be regarded as a 'subject' but as 'an approach to a

number of subjects through organised enquiry', and that 'central to this approach is the use of the environment to develop, systematically and progressively, a number of skills through which can be acquired the concepts necessary for an ordered understanding of the environment'. (Schools Council, 1972). Within this latter statement lies the relationship with the definitions of Environmental Education that associate with 'social skills' or 'attitudes of concern and respect such as tolerance, concern for the environment and good conduct' (ibid). The Schools Council saw the 'organised enquiry' as only succeeding if it were carried out 'throughout the primary school and so developed progressively from year to year' (ibid). The evaluation of the 'programme' included the statement, 'each school needs to be fully aware, not only of the skills involved and the sequential development, but also of the potential for environmental studies in the immediate vicinity of each school' (Schools Council, Environmental Studies Project, A Teachers Guide, 1972)

2.2 The 'Environmental Revolution' and its Educational Impact

2.2.1 The Origins of the Environmental Revolution

Max Nicholson described the growth of the environmental Education movement after 1968 as the

'Environmental Revolution' (Max Nicholson, 1970). His use of the term reflected the growing concern for the environment which had evolved in the nineteen sixties as a response to literature such as Rachael Carson's, 'Silent Spring' (R Carson, 1962 in 'New Yorker'), films such as 'Serengeti Must Not Die' (B Grzimek in M Nicholson, 1970), and the impact of disasters such as the Torrey Canyon oil-spillage in South-West England and the methyl mercury compounds contamination of fish in the Minamata disease, Japan. As part of his explanation for the considerable growth of interest in environmentalism Nicholson examines the impact of the camera. He points out the effectiveness of literature written in advance of Silent Spring, works such as 'The Rape of the Earth; A World Survey of Soil Erosion' (G V Jacks and R O Whyte, 1939), 'Our Plundered Planet' (F Osborn, 1948), and 'Road to Survival' (W Vogt, 1949). However, he comments,

'It would be difficult to exaggerate the impact and influence upon world opinion of the pictorial accompaniment of the conservation movement' ... 'The breadth and depth of this impact on mass consciousness, which has hardly yet begun to be appreciated, may be attributed mainly to four factors. First ... the attraction and charm of nature itself as a subject ... Second is the outstanding technical capability conferred by techniques adding realistic color, sound, and movement to visual presentation ... Third has been the fortunate unbroken succession of exceptionally gifted practitioners who have applied their mastery of these media to this field. And finally account must be taken of the vastly expanding channels for bringing the results quickly, economically,

conveniently and effectively before millions of people'.

(Max Nicholson, 1970, pp223-224)

Wheeler believes the 'revolution' to have been triggered in Britain by the 1969 BBC Reith Lectures, 'Wilderness and Plenty', given by the ecologist Sir Frank Frazer Darling. (G C Martin and K Wheeler, 1975). Certainly radio and television programmes popularised the environmental debate from that point in time. The magazine 'Ecologist' was launched in 1970 and in its publication, 'Blueprint for Survival' (1971) it included the proposal to aim for 'the minimum disruption of ecological processes, the maximum conservation of materials and energy'. A scientific appraisal of the ecological future of the world with an attempt to forecast the physical, economic and social relationships between man and nature was published by a group of industrialists, calling themselves the 'Club of Rome' in 1972 (D H Meadows et al, 1972), their findings influenced British literature.

2.2.2 Professional Support for the Ecology Movement

The impact of the ecology movement was during the same period, mirrored by an increase in professional bodies established to study the environment. Two government financed research organisations were established. The National

Environmental Research Council in 1965 and the Centre for Environmental Studies in 1966. The Council for Environmental Education (CEE) and the Society for Environmental Education (SEE) followed in 1968 and the National Association for Rural Studies re-established itself as the National Association for Environmental Education (NAEE) in 1972. CEE had grown out of a series of study conferences initiated by the Duke of Edinburgh to explore ways of achieving improvement of leadership among countryside amenity and conservation organisations. Of the three national conferences, one in 1963 and two in 1965, the conferences at the University of Keele had the greatest effect with its emphasis on the implementation of Environmental Education in schools. SEE was established to assist teaching for the improvement of the environment 'using the environment for education and education for the environment' (G C Martin in TES, March, 1969).

2.2.3 Urban Education

Running parallel to a concern for the rural environment was an interest in urban education. The Buchanan Report 'Traffic in Towns' (C Buchanan, 1964) drew attention to the problems caused by the motor car. Along with the efforts of the Civic Trust and the Council for British Archaeology the Buchanan Report resulted in the creation of the

Civic Amenities Act of 1967, with the aim of implimenting urban conservation. The Skeffington Report, 'People and Planning', 1969, was a 'landmark in the development of urban Environmental Education' (K Wheeler, 1975). This enquiry into ways and means of helping the public to participate in the decision-making processes of environmental planning further recommended that planning should be taught in schools. The Department of the Environment (DOE) was established in 1970 to focus government concern on environmental problems. The Education Unit of the Town and County Planning Association (TCPA) was set up in 1971 to campaign for the introduction of urban studies in schools and has most effectively approached the schools through its 'Bulletin of Environmental Education (BEE). BEE's educational strategy, influenced by the philosophy of Goodman, Illich, Reiner and Paton, is embodied in the term 'streetwork' coined by Fyson and explained as

'the emotional contact with poverty, unhappiness and general dissatisfaction with which urban studies pupils are inevitably confronted seems barely represented by the bland and curious phrase urban fieldwork, and I propose **streetwork** in its place - suggestive I hope of the kind of community involvement already aimed at in the avante-garde theatrical world through street theatre'

(C Ward and A Fyson, 1973, pp15-16)

By 1972 the work of BEE extended to the establishment of Urban Studies Centres in towns and

cities similar to Field Studies Centres in the countryside and to the construction of town trails. Colin Ward and Anthony Fyson, TCPA's education officers, proposed ideas for urban Environmental Education which complimented those of ecological and conservation pressure groups of environmentalists.

2.2.4 International Support for a Global Ethic

Post 1968 Environmental Education has also been fashioned by international organisations such as the United Nations, through UNESCO, the United Nations Environment Programme (UNEP) and the International Union for the Conservation of Nature and Natural Resources (IUCN). The latter producing the most popularly used definition of Environmental Education at their 1970 Nevada conference (above). The United Nations concern for the environment was declared in the Stockholm Conference on the Human Environment in 1972 which published a Declaration on the Human Environment and a World Action Plan for the Environment in which it was declared,

'to defend and improve the environment for present and future generations has become an imperative goal for mankind'

(Connect, 1978)

Conference Recommendation No 96 called for

'the development of Environmental Education as one of the most crucial elements of an all-out attack on the world's environmental crises'

(Connect, 1976)

Perhaps the conference's prime recommendation, that

'Environmental Education and the exercise of citizenship go hand-in-hand; the opening up of opportunities for public participation in decision-making is the most important of all means to environmental education, which should aim at developing a critical, moral and aesthetic awareness of our surroundings'

(G C Martin and K Wheeler, 1975, p17)

has the greatest implication for primary education and the employment of fieldwork techniques. The Belgrade Charter, 1975, promoted a world-wide Environmental Education programme, was unanimously approved at the International Environmental Education Workshop, (Belgrade). A principal aim of the charter was the establishment of a 'global ethic' in which they perceived the role of education as being central. The kind of education visualized would

'require new and productive relationships between students and teachers, between schools and communities, and between the educational system and society at large. It would also develop new knowledge and skills, values and attitudes. Environmental Education should emphasize active participation in preventing and solving environmental problems'.

(Connect, 1976)

These ideas and principles were endorsed and developed by the Tbilisi Intergovernmental

Conference on Environmental Education in 1977. The Tbilisi Conference had five major items on its agenda:

'major environmental problems in contemporary society; role of education in facing the challenges of environmental problems; current efforts at the national and international levels for the development of Environmental Education; strategies for the development of Environmental Education at the national level; regional and international cooperation for the development of Environmental Education'.

(D Hughes-Evans and S Carson,
Environmental Education, June 1978, Vol 8)

For the purpose of this research attention shall be focused on the second and fourth items with specific concern for primary education and the role of fieldwork. About the role of education the Report says -

'Environmental Education should be integrated into the whole system of formal education at all levels' ... and that 'it [Environmental Education] must adopt a holistic perspective which examines the ecological, social, cultural and other aspects of particular problems. It is therefore inherently inter-disciplinary'

(ibid, p14)

2.2.5 The Promotion of Interdisciplinarity within the School Curriculum

It is claimed that 'no single discipline, for example Geography, Sociology, History or Biology can encompass the totality of the environment, that is constitute Environmental Education' (Connect, 1981). Interdisciplinarity was a recurring theme in the Tbilisi Final Report where, in the approach,

the environment may be used as a central theme around which single disciplines can be co-ordinated. Interdisciplinary or team teaching strategies were advocated employing problem-solving techniques. Ten years after the Intergovernment Conference its impact upon Environmental Education is still being fuelled by a range of literature, principally the UNESCO-UNEP Environmental Education Newsletter, 'Connect' which has presented a systematic analysis of its principal purposes and goals of Environmental Education. In the 'Strategies for the development of Environmental Education at National Level' section of Tbilisi, Environmental Education is described as being

'centred on practical problems and being of an interdisciplinary character. It should aim at building up a sense of values, contribute to public well-being and concern itself with the survival of the human species. Its **force** should reside mainly in the initiative of the learners and their involvement in action and it should be guided by both immediate and future subjects of concern'

(D Hughes-Evans and S Carson, op cit, p14)

To achieve this type of education new teaching methods would be required which, as traditional, single discipline programmes are the norm in education, implies reforms in the educational system itself and to an 'examination of the content and contribution of disciplines'. (Connect, 1981). A range of pedagogical approaches, including fieldwork, is inherent in the aim to attain growing

interdisciplinarity and coordination of disciplines
where

'a practical education oriented toward a solution of the problems of the environment' is employed and where 'to make pupils better equipped for their solution by teaching them to participate in decision making' is encouraged

(Connect, Vol VIII, June 1983)

Hughes-Evans and Carson see the ideals of Tbilisi being promoted in the primary curriculum by;

'programmes of visits, the use of free time for activities in close contact with the environment, the development of a critical faculty and scientific levels so as to give an awareness of relations with the community and move towards solutions'

(NAEE, June 1978, Vol 8, p15)

The pressures on national government emanating from Tbilisi and the subsequent associated literature has been great and has maintained the impetus of the 'Environmental Revolution'. In recent years the Local Education Authorities have been required to develop policies for the curriculum in their schools as their response to the Secretary of State's enquiry 'The School Curriculum: Circular 8/83' (DES, 1983), and the findings of existing practice in schools shown in the HMI survey reports: 'Education 5-9: an illustrative survey of 80 first schools in England' (HMSO, 1982) and '9 to 13 Middle Schools' (HMSO, 1983). Here, statements on general aims, were supportive of Environmental Education and skills and knowledge comments

pertinent to fieldwork. However, specific aims are encompassed in the 'Curriculum Matters' series the need for which arose as a direct result of the announcement by the Secretary of State, in 1984, that he intended to seek broad agreement about the objectives of the 5 to 16 curriculum. To date no document with the word environment in its title has been published in the series but paper 2, 'The curriculum from 5 to 16' (HMSO, 1985) and paper 7, 'Geography from 5 to 16' (HMSO, 1986) offer considerable guidance in this area. In the former document HMI, in describing the teaching programme of primary schools, see the value of environmental studies in covering 'various elements of subjects in combination, such as geography and history, together with science, language, art, craft and possibly drama' (HMSO, 1985, p8). The discussion document promotes the need for fieldwork in their description of active learning where they state,

'in particular, it is necessary to ensure that all pupils are given sufficient first-hand experience' and that 'teaching and learning might ... extend to using the local environment, undertaking community service and establishing contact with commerce and industry'.

(HMSO. 1985, p11)

'Curriculum from 5 to 16' recognises the need for Environmental Education to 'help pupils to develop an awareness, appreciation and understanding of their surroundings' and sees it as being 'presented through science, history and geography ... or

acting as a unifying approach for work in and out of school in several subjects and curricular areas.' (ibid). In the identification of its nine 'areas of learning and experiences' the document lists the following: aesthetic and creative; human and social; linguistic and literary; mathematical; moral; physical; scientific; spiritual and technological, all of which are essential elements of a broadly based Environmental Education. Each of the areas of learning and experience are explored on the basis of their relevance to the school curriculum, and in each environmental concern may be clearly perceived and the requirement for field-based activities, be they school, local or distant are actively recommended. Similarly the Curriculum from 5 to 16 document considers the 'elements of learning' (HMSO, 1985, p36), that is the knowledge, concepts, skills and attitudes that the schools should seek to develop in their pupils. Here the nature of Environmental Education is identifiable and the examples quoted in each section, relate well to its role in education 'through' 'in' 'about' and 'for' the environment.

CHAPTER THREE - FIELDWORK IN PRIMARY ENVIRONMENTAL EDUCATION

3.1 The Field Studies Tradition

It has been suggested in the previous chapters that Environmental Education has been characterized by several strands of development and consequently by differences in emphasis and interpretation. Consideration of these strands of development has revealed the important role that fieldwork has acquired. Fieldwork, in Environmental Education, is not new, good education has always looked outward from the classroom and has drawn on the experience of the child. The learning potential embodied within environmental fieldwork had long been recognised by many writers. Karl Ritter educated in the late eighteenth century describes how his,

'interest in geography was first awakened at school, where the pupils were trained to make accurate observations during long walks in the country'

(J E Archer and T H Dalton, 1968, p12)

H E Armstrong in an essay written in 1898 makes the recommendation,

'I would have ... outdoor exercises in the experimental gardens which will, I believe, in the future, be held to be an essential feature of the school's equipment'

(W H Brock, 1973, p116)

Parallels exist here with proposals to use the school estate as 'an outdoor resource centre' (School Council Project Environment, 1973). Herbertson, lecturer at Heriot-Watt College, Edinburgh from 1896-9 held experimental field-classes with Dunfermline children. (Archer and Dalton, loc cit). Geddes, also at Edinburgh, utilized short, intensive field courses for teachers, these were emulated by Gilbert and Mackinder at Oxford between 1906-14 (ibid). The Le Play House Educational Trust conducted courses in fieldwork after 1918.

Twentieth century education reports make reference to both the content and learning associated with environmental fieldwork, and a study of these reveals the official attitude towards an evolving field studies tradition. As these reports have received attention in chapter two only fieldwork specific statements are included in this section.

The Hadow Report, whilst generating little school response, specified that

'The home district, or some easily accessible one, is an essential for first hand study of geographical relationships ... we would urge much out-door study in geography as well as in science'

(Hadow Report, 1927, p208)

In identifying that 'the locality provides a considerable amount of concrete evidence' (ibid, p199), and that 'we hope that, wherever possible, school gardens will be provided (ibid, p237), Hadow drew attention to both the historical and rural studies aspect of environmental fieldwork. These statements can only be viewed as recommendations rather than positive policy, a situation which appears little altered by the Norwood Report. Here field study in geography received support,

'The course in Geography in school might reasonably be expected to include ... field work and first hand knowledge of town and country. We would urge that such field work should find a place in every syllabus'

(Norwood Report, 1943, pp102-3)

However, the report did not extend this recommendation to history or the sciences.

A major advance in the opportunities to utilise fieldwork in Environmental Education was promoted by the Ministry of Education Circular No 140, 1947, which revoked the 1943 Regulation 18 (3), 'Regulations of the Primary and Secondary Schools' under which 'consent of HMI had to be obtained before secular instruction in maintained schools can be given off the premises'. Circular 140 also presented a positive statement in which it urges that,

'The instruction in question should be of real educational value ... and should, where possible, be linked up with the normal work of the school'

(Ministry of Education, 1947)

The Plowden Report, 'Children and their Primary Schools', emphasised the need of primary schools to use both local and distant environments, and stressed Piagetian theory through focusing on the use of the child's curiosity about, and natural urge to explore, the environment. (HMSO, 1967, para 530, p195)

Paralleling the growth in literature that accompanied the 'Environmental Revolution', during the late 1960's to mid 1970's was an increase in literature reflecting the increased use of the environment, dubbed by many writers the, 'fieldwork explosion'. The majority of these works, however, remained within their traditional subject categories. Consequently, whilst the authors are largely agreed upon the high value they place on fieldwork and, like Kerr support 'teaching away from the brickbox' (J Kerr (ed), 1968), there is considerable disagreement on its definitions, nature, purpose and place in the curriculum of schools.

Much of the literature generated during this period was influenced by the **recreation** and

conservationist lobbies. The post-war years in Britain had seen a great increase in the public's use of the environment for recreation purposes. Dower's work, 'The Fourth Wave - The Challenge of Leisure' (Civic Trust, 1965) heralded the concern over excessive exploitation of some environments. Official bodies had recognised the problem of over-use as early as 1935 when the Forestry Commission, on creating Argyle Forest Park, exercised control over its use by the public. This policy was continued after World War II, and the National Parks Commission, established in 1949, operated a policy of 'controlled usage' in the ten National Parks it administered. In 1968 this organisation was redesignated the Countryside Commission with powers to extend recreation into 'Areas of Outstanding Natural Beauty' and into 'Country Parks'. Opening up of these areas to a public with greater mobility, due to the increase in car ownership, required governmental intervention in order to 'educate' the public about correct environmental procedures. Hence the Cobham Report states,

'The Committee believe that a proper emphasis in schools on education for the countryside and for recreation pays handsome dividends'

(Cobham, 1973, p118)

and the Sandford Report, commenting on public use of the environment stated,

'We consider that it is particularly important to encourage proper attitudes in school children'

(Sandford, 1974, p90)

The need for competent and efficient leadership of educational parties in the field, with safety and conservation as prime considerations has led to the production of many national and local publications, including codes of conduct (DES, 1981, p11).

The Field Studies Council, (initially the Council for the Promotion of Field Studies) a voluntary organisation formed in 1943 has played a major role in the evolution of fieldwork at all levels of educational practice,

'Their invaluable achievement is to have developed field-work methods, established recognized standards and undertaken research'

(DES, 1981, p11)

The Field Studies Council has been particularly effective in persuading schools to provide opportunities for outdoor study through the development of programmes giving pupils a series of progressive field-study experience including visits to **residential centres**. LEA's and independent bodies were very active in the establishment of residential centres during the 1960-70's, although by the end of that period,

mainly through financial constraint or severe over-use of some environments, development peaked and in some cases centres were closed. By 1979 over 360 LEA residential centres and nearly 300 independently-run centres were functioning, wholly or partially for the provision of field studies. Cleveland LEA has a long history of providing residential accommodation for those participating in field activities. As early as 1939 Middlesbrough, (the largest town in the Cleveland conurbation), jointly owned with Gateshead the Dukehouse Wood Centre, near Hexham, Northumberland. The centre was run by 'National Camps' an organisation which had many such centres nationwide and who included amongst their objectives the 'use of the outdoors towards the improvement of health'. When National Camps ceased operation in 1955 the centre was purchased by the Gateshead LEA. Middlesbrough LEA, recognising the increasing educational potential of fieldwork, the quality of this location and recently freed from the fetters of the 1943 Regulation 18, (above), by Circular, 140, (Ministry of Education. 1947) entered into a cost-sharing partnership with Gateshead which, now under the extended organisation of Cleveland County, continues to this date. The 'Centre' currently caters for about 4,500 pupils per annum plus specialist courses. Two other residential

centres, Carlton Camp, near Stokesley (N Riding of Yorkshire), and Stainsacre Hall, near Whitby, were opened by Cleveland in 1961, coinciding with the start of the 'explosion of field centres' (A T Herbert et al, 1972, in Field Studies, Vol 3, No 4). Herbert, Oswald and Sinclair's article, 'Centres for Field Studies in England and Wales' (ibid) plots the growth of field centres from a total of 8 pre 1941 to 46 in total (school, YHA, Field Studies Council, LEA and other) by 1960. However, during 1961-65 numbers rose to 114 and by 1969 to 192. Stainsacre and Carlton are still in operation providing a wide range of recreational and environmental activities. The great increase in field centre numbers, shown above, particularly in the late 60's follows Plowden's urgings to use distant as well as local environments. Three years after Plowden, the Coniston Outdoor Pursuits Centre, Lancashire was opened by the Teesside authority (now Cleveland) in 1970.

3.2 Urban Studies : 'Streetwork'

Urban studies has developed from the wider Environmental Education movement with its strong concern for bioethics and conservation. Its roots lie in such establishments as the Outlook Tower created by Patrick Geddes, in Edinburgh in the 1890's as a 'sociological museum and laboratory';

the Landmark Centre, Stirling which supplies an interpretation of the local environment by the use of exhibits, slide and tape shows and printed material; the Planning Exchange, Glasgow, 'a centre for information, education, research and debate on all aspects of environmental and social planning'; The Terrace, Conisbrough, running courses on the local environment and community and the numerous Teachers Centres, museums and libraries spread throughout the country.

In the late 1960's it was felt that insufficient attention had been paid to the urban and built environment and campaigning began for an urban element to Environmental Education and for the development of techniques and methodology now known as urban studies. The Schools Council in their publication, 'Project Environment - Education for the Environment', (1973) recommend that

'Children ought to study their own surroundings whether they be urban or rural. They ought to know about the way human activity has given their locality its particular characteristics ... what was done in the past and what needs to be done in the future to make it a better place for human activity'

(Schools Council, 1973, p14)

Also in 1973, February, BEE carried an article by Ward and Fyson (TPCA) outlining a case for **urban studies centres**, based upon the need for a

facility in towns and cities to fulfil the role played by the field studies centres in rural areas. They would, it was argued, aid direct learning in the urban environment through streetwork just as field centres aid fieldwork in rural areas (Council for Urban Studies Centres [CUSC], 1974, p5) In defence of their case for the development of urban studies Ward and Fyson drew attention to the predominance of urban-based education,

'Eighty per cent of our children live in urban areas and ninety per cent go to school in them'

(C Ward and T Fyson, BEE, 1973)

The Council for Urban Studies Centres (CUSC) was founded in 1973 to

'promote and advance the study and understanding by school-age and older students and by the public at large of the social, physical and natural characteristics of the urban environment and their inter-relationships'.

(DES, 1981, p11)

The Council identified the need for urban studies in relation to the state of urban society where it noted that changes in the inner city had created 'fluctuating populations and social conditions' and had 'destroyed much of the original character of town centres'. (CUSC, 1984, p4) The Department of the Environment (DOE) contributed to the debate when it issued the statement,

'Urban Environmental Education should help people to perceive, understand, analyse and finally improve their built environment'

(DOE, 1979)

The Department wanted people to participate more effectively in shaping their local environment, drawing upon 'environmental aspects of traditional subjects' and specified the involvement of 'direct experience as well as academic study' (ibid).

In their 'State of the Art' Report, 1984, CUSC identified the role of Environment Education in urban areas as,

'helping people understand what is happening to them now and influence what will happen to them in the future. It can make a significant contribution to the corrective policies and action which are required throughout our society'

(CUSP, 1984, p4)

The great increase in urban studies over the last fifteen years has been mainly carried out in schools, local teachers centres and field centres, but by 1984 forty, 'Urban Studies Centres' had been established two of which were located at Saltburn and Stockton (Green Dragon), County Cleveland. The Council, CUSP, identified seven roles for urban studies centres, six of which lay outside formal education. That pertaining to formal education, as a 'learning base', is largely restricted to secondary pupils and older students

and will therefore not be explored further.
(CUSP, 1974, p's 5-6).

Many teachers had seen urban studies as uninteresting, drab, complex and time consuming and believed that children living in deprived areas should be taught,

'about things and places which are more colourful and attractive'

(C J Lines and L H Bolwell, 1971, p25)

The inability to recognise urban surroundings as a resource presented problems to teachers initially, as articles of that period reflect, they required persuading that,

'there are city alleyways, urban rivers, backyards, grocery stores, nature centres, factories, parks ... and the living rooms of individual homes. The environmental learning resource, the new material is everywhere'

(J Gondswaard and M de Teitelbaum, 1977, p50)

Storm writing in BEE, 'Schools and the Community, identified a further aspect of teacher resistance to urban studies,

'... the primacy of local study tends to evaporate when the teacher compares the pre-selected, processed, effectively-arranged and plentiful material available to him on non-local themes, with the complex, often inappropriate, elusive and uncompromising adult material which he must use locally'

(M J Storm, 1971, p3)

Storm also believed that teachers found urban fieldwork more time consuming than work in more conventional themes and he observed,

'though all educationalists and most teachers will agree on the need for local study, it is still exceptional to find much evidence of such investigations in primary and secondary schools'

(ibid. p2)

The Report for Stockholm United Nations Conference, 1972, established a more positive attitude towards the urban environment in recognising,

'The human habitat is not just a world of objects but a world of values'

(Stockholm Report, 1972, Section 8)

The report suggested the creation of urban centres along the lines of the successful countryside centres in order to produce 'not merely a generation of citizens with a greater critical awareness but also a generation of planners' (ibid). The growth of urban studies particularly through the development of urban trails in the latter part of the 1970's gradually eroded Storm's pessimistic vision. Increasingly author's writing about streetwork echoed the views of Gondswaard and de Teitelbaum (above), and are typified by:

'the biophysical environment in urban contexts provides as rich a basis for problem identification and problem-solving

for the young as the natural environment on the sea-shore or the countryside'

(Allen and Chiba, 1977, p90)

3.3 The Role of Fieldwork in the Primary Phase of Environmental Education

Fieldwork in Environmental Education has been variously perceived. Initially it was largely observational and descriptive in its approach but by the 1960's the recommendation of the Ministry of Education to make 'the instruction [in the field] be of real educational value' was being heeded (Ministry of Education Circular 140, 1947). Pritchard writes,

'Several refinements in ... basic methods have been made during the last decade, and techniques developed which place field studies on a more scientific basis and enable more efficient use to be made of the time spent on outdoor work'

(T Pritchard in G C Martin and K Wheeler, 1975, p190)

Whilst the move toward more scientific method has received considerable support, e.g. Greasley writes 'Fieldwork is collecting information. Good fieldwork is collecting information for a purpose' (B Greasley, 1984, p5), care has been urged, during the primary phase, that,

'structured field work and analysis should not be introduced before the child has the necessary mental equipment to deal with

it, that is at the beginning of secondary education'.

(S McB Carson, 1978, p86)

Carson suggests that fieldwork with pre-school and infant children should involve use of,

'the immediately available environment frequently and intelligently to bring out the relationships it holds... first-hand expertise of a variety of simple interrelationships, and the relationship of structure to function, always emphasizing his own ultimate dependence upon, and responsibility for, other forms of life, and drawing out the wider environmental concepts wherever an opening occurs'.

(S McB Carson, 1978, pp86-87)

This statement does not run counter to the views of Bruner who believed that

'There is an appropriate version of any skill or knowledge that may be imparted at whatever age one wishes to begin teaching - however preparatory that version may be'.

(J S Bruner, 1966)

However, some teachers, and authors, in accepting Bruner's statement take an over-simplistic view and may be criticized for their over-optimistic expectations from children working in open-ended situations similar to those familiar to research scientists. Masterton, in this context, places emphasis upon unfettered scientific method,

'on the observation of a phenomenon, on the making of a record and on the

interpretation of what has been seen and recorded ...'

(T H Masterton, 1969, p vii)

and describes field work without attention to the readiness of the child, as including,

'the study of anything real that can be seen and recorded by the child ... the study is then developed in a concentric fashion to include the places and work of other people'

(ibid)

By contrast the Schools Council in their Working Paper 70 consider that

'Teachers are likely to have aims ... for each class they teach, and each pupil in those classes. They are well placed to have an overview of each child's progress towards these aims, and how each activity contributes to progress towards each aim'

(The Schools Council Working Paper 70, 1981)

Watts considers the ways in which the aims of environmental fieldwork may be achieved by distinguishing six approaches. 'Undirected, unspecific discovery' where pupils are allowed to 'walk round the village and hope that they notice something interesting'; directed, unspecific discovery' where pupils 'walk around the village and note things of interest'; 'undirected, long-interval discovery': 'talk about lichens in class, and hope that they notice some in tomorrow's field-work'; 'short-interval, specific discovery': 'Is the plant growing on the roof of

the grey-stone building ivy, moss or lichen?' (D G Watts, 1969, p65). Watts considered that, with young children, the further down the list it was the more likely that the technique would be effective. He supported activity and discovery methods generally for the age-range and believed that the problem facing their teachers in environmental fieldwork,

'is not the bringing of the environment into the classroom, but the taking of the classroom into the environment, and finding ways of structuring the environment to permit the use of the most effective teaching techniques'

(D G Watts, 1969, p66)

Pritchard similarly considered field studies as being essential to the understanding of environmental problems but also as

'an important educational tool in their own right thus contributing fundamentally to the educational process'.

(T Pritchard, 1975, op cit, p190)

He considered that the most important roles of fieldwork were:

'allowing quite simple observation to be original and thus to contribute to knowledge ... [bringing] satisfaction to the pupil and an early interest in original study. At the same time it strengthens confidence in his ability leading to a progressive development of a spirit of enquiry'

(ibid, pp190-191)

Pritchard also saw great value in the establishment of team work approaches, and the demonstration of subject integration coming from the 'breadth of most field studies' and the 'approaches common in many subjects'. (ibid)

Weston's somewhat limited vision in 1977 was at variance with Watts and Pritchard when he wrote

'the field is for training and practice, the classroom is for teaching'.

(B Weston, 1977, p9)

Laws did not accept Weston's treatise and amongst the reasons he presents for conducting fieldwork he includes,

'the field is the laboratory - where abstract concepts can come alive'

(K Laws, 1984, p134)

Laws stated that 'in pursuing fieldwork in the hypothesis testing mould selective observation, discriminating evaluation and other features associated with scientific method would be encouraged'. (ibid). He believed that the educational transferability of this had great potential. Storm also held the view that

'Wherever the school is situated, a problem-orientated approach to local study is possible'

(M Storm, 1971, p4)

Pocock recognised the value of scientific method but felt that its principal use in fieldwork was to explain the environment. He also wished scientific method in this context,

'to be subordinated to personal engagement with more emphasis on the forgotten senses; touch, smell and sound' and saw the environmentalist as 'much an artist as a scientist'.

(D Pocock, 1983, p319)

The nature of environmental fieldwork may also be related to place and location. Too frequently, in the past, fieldwork was restricted to studies of distant locations during the annual 'day trip'. Watts was critical of this situation and had long advocated the identification of different aspects of environmental fieldwork in,

'the whole expertise of the child; features of the school and classroom used in active learning; features of the neighbourhood and natural surroundings used in teaching and the physical and social characteristics of the child's home, neighbourhood, and wider world'

(D G Watts, 1969, pp77-78)

Watts quoting from Bloom (1956) in brackets saw the role of such activities as developing the following abilities in pupils:

- '1 to identify the main features of any local environment in which he finds himself (knowledge);
- 2 to explain how these features interrelate in contributing to the character of the neighbourhood (analysis);

- 3 to perceive where modifications to the environment might be made (synthesis);
- 4 to evaluate the various interpretations which have already been made of that environment (evaluation)'

(D G Watts, 1969, pp77-78)

The National Association for Environmental Education (NAEE) in 'Environmental Education: a statement of aims', (NAEE, 1976), in which support for the Nevada definition of Environmental Education was issued at the outset, provided an operational plan for Environmental Education for each educational phase. Fieldwork was seen as being of particular importance in the education of pupils in the primary (5-10) and middle (9-13) phases. At the primary stage they recommend the involvement of pupils

'in personal experience of the environment by direct exploration with all their senses'.

(NAEE, 1976 n.p.)

The NAEE specify the use of the school, the schools immediate surroundings as well as more distant environments for fieldwork in order to involve both the

'living environment in small nature reserves, school gardens or in the countryside and the built environment in streetwork ... to develop and deepen concepts'.

(ibid)

The role of fieldwork is seen as developing language, numeracy, scientific methods of enquiry, aesthetic appreciation and creative expression as well as encouraging the development of value judgements and an environmental ethic. 'Children at this stage should be introduced to the statutory and accepted codes of environmental behaviour (loc cit). During the primary phase the NAEF felt that it was important to keep in mind 'the sequential development of concepts whereby understanding is built on previous experiences' (ibid). This view received support from Golland,

'the child's environment provides him with a source for learning which begins in the home and continues throughout life. It offers day to day experiences from which he learns and the teacher's role may be seen as one of co-explorer in a new world'

(D Golland, 1981, p30)

During the middle years (9-13) observational work, the NAEF argue, will develop into accepted 'subject' areas.

'Thus local history, geography, science will all grow from environmental experiences'

(NAEF, 1976, n.p.)

A survey held in 1976, showed that 40% of the 11-12 year old pupils were engaged in environmental work and the principal departments involved at the early secondary stage, as being: Geography 73%,

Biology 59%, Science 42%, General Studies 37% and History 33% (P S Berry, 1976, p5)

The NAEF emphasised that,

'during this stage (9-13) all children should have regular experience of working in the field (and street) locally and wherever possible, in a residential situation in a contrasting environment. The focus at this stage should be on the emerging patterns and inter-relationships of environmental features on local and national scales, with an emphasis on conservation and the action of man'

(NAEF, 1976, np)

The 'National Survey into Environmental Education in Secondary Schools' showed that 76% of pupils participated in some form of environmental fieldwork/practical work. (P S Berry, 1976, p11)

The NAEF statement gives full support to the IUCN's, Nevada, definition of Environmental Education and to the importance of the role of fieldwork in Environmental Education. The Tbilisi Report (1977) echoed this bioethical theme and placed great value on fieldwork when it recommended that,

'Environmental Education should utilize diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and first-hand experiences'

(Tbilisi, 1977)

This theme was further developed in 1979 by HMI who in their discussion document drew attention to the following roles for Environmental Education. Translated into appropriate aims for fieldwork during the primary phase these are;

- | | |
|------------------------|--|
| 'ethical' | principally concerned with the canons of considerate behaviour and codes of conduct; |
| 'scientific' | opportunities for learning such skills as observing, selecting, investigating, classifying, making hypotheses, experimenting and theorising; |
| 'linguistic' | use of the world around us as a powerful stimulus to language development and self-expression; |
| 'mathematical' | inherent in patterns and processes of the natural world, therefore, its study fosters mathematical skills; |
| 'physical' | the need and wish to explore the environment; |
| 'Social/
political' | the creation of awareness of the interdependence of human communities; |
| 'aesthetic' | to foster perception of the environment as a means to the enrichment of experience; |
| 'spiritual' | wonder evoked by the natural world and the perception of forces external to human existence. |

(HMI, 1979)

Similar descriptions of the role of fieldwork were issued in both the 1985/86 Curriculum Matters

Series, Volumes 2 and 7, although here HMI added a technological dimension . In Volume 7, 'Geography from 5 to 16' HMI describe Geography during the early years as

'more likely to be organised around activities and topics than in the form of subjects', and that, 'at this stage the most appropriate learning is through first-hand experience and observation'

(HMI, 1986, p5)

The objectives of the geography curriculum, at this phase, are largely synonymous with environmental objectives. Many of the objectives are closely interrelated involving the acquisition of knowledge, the development of skills, understanding and attitudes and the capacity to react to the environment. Fieldwork is well represented as

'basing much of the learning on first-hand experiences focuses attention on the opportunities available in the local area and the gains to be derived from exploring the world outside the classroom'

(HMI, 1986, p6)

The latter is further seen as providing,

'a broader and richer environment than the classroom alone can provide [in] the support of language and mathematical understanding' ... and in 'stimulating and enriching pupils', 'imaginative writing' and 'extending and intensifying pupils environmental and spatial awareness'

(HMI, 1986, pp9-10)

In 'Geography from 5 to 16', HMI state that much of the best work in this subject area in the later years of the primary phase is concerned with the local area.

'The locality of their home and school usually remains the most important source of direct environmental experience and the place in which observations and investigations can be most easily carried out'

(HMI, 1986, pp12-13)

However, the pamphlet goes on to point out that the study of unfamiliar places deserves greater attention. This recommendation is not an innovation, see Watts, 1969, pp77-78 (above). Ennever in his work, 'With Objectives in Mind', supported this view

'Commensurate with the child's increased ability is the need to provide additional experiences beyond his immediate surroundings, the need arises for structured educational exercises away from the school'

(L Ennever, 1972, p11)

Controversy has raged over the need and purpose of studying distant as opposed to, or as well as, local environments, whilst the extension of these studies to include physical presence at the sites figures in current Environmental Education debate. In the Times Educational Supplement 1983 article, 'Streetwork in Towns and Cities', Russell, Hurst and Armstrong pose the question - 'are local

authorities spending lots of money on field centres in the country for urban children so that tricky problems on the doorstep are avoided?' (TES, 1983). Russell et al argue that 'to get full benefit of studying a strange environment they need to have an appreciation of their own'. (ibid), p50). However in Webb's work, 'Expanding Environment', 1980, he expressed pleasure at the extension of Environmental Education to include national scales, saying that,

'emphasis on only the local environment of the child is inappropriate to the child's needs in a modern world'.

(D Webb, 1980)

McMurtrie also welcomes the inclusion of an international dimension within Environmental Education and considers 'visits abroad ... (as) certainly important and should be encouraged where possible' (D McMurtrie, 1987, in Environmental Education, p21). Although placing greater emphasis on the use of the local environment, due to its 'accessibility and cheapness', McMurtrie advocates the search for 'Euro influence in one's local area' (ibid).

The Brandt Report, 1980, proposed paying more attention to international problems whilst Torney asserted that recent research contradicted the view that children under 12 years of age are not

ready to learn about the world. Indeed she argues that the period from 7 to 12 is optimal both for education directed towards attitudinal objectives and for openness about the world. (J V Torney, 1972, pp6-7). Carson also said that children should be allowed to examine their own locality but should then be encouraged to apply those skills and attitudes developed to a wider, global environment. He believed that 'the effect of ignoring reality can only make formal education unreal and ineffective' (S Carson, 1978).

Initially study of distant environments, apart from the traditional 'day trip' even to regional locations was achieved through the second-hand experience of books, maps and films, and not as part of a fieldwork role. However, Rupert Booth, HMI Environmental Education, in his perception of a 'third wave' of environmental development, following the two early 'waves', (the agrarian and industrial revolutions), saw the need for education to change 'in order to produce the specialised elites to counter the consequences of the decaying second wave'. (R Booth, Vol 151, BEE, 1983).

Amongst Booth's lists of priorities he recommends the use of fieldwork,

'local fieldwork, visits further afield, use of urban and field study centres and

of international exchanges and excursions'.

(ibid)

as a planned part of new curriculum structure.

This expanding role of environmental fieldwork is further defended in Webb's, 'Expanding curriculum', where he writes,

'Increased interdependence and rapid changes are facts of life in the late twentieth century. Exposure to only one set of values would, therefore, appear to be insufficient. Perhaps what is required is a re-examination of what is meant by a child's environment'

(D Webb, 1980)

The role of fieldwork in Environmental Education would therefore appear to be complex, requiring relationship to the age and developing skills and abilities of the child; knowledge and content of the school its grounds and immediate locality; the socio-economic composition of that locality, concern for its environmental quality; and exposure to national and international influences.

3.4 The Influence of Local Initiatives on the Character and Provision of Fieldwork in County Cleveland.

3.4.1 Urban Studies Centres

As indicated in the earlier sections of this chapter Cleveland County, formerly Teesside, has had a long history of involvement with fieldwork practices through the use of both local and distant, rural and urban, environments. Their **field centres** date from as early as 1939, (the Dukehouse Wood Centre), 1961, (Carlton Camp and Stainsacre Hall) and more recently, 1970, (Coniston). Whilst the aims of the various centres vary, and have developed through time, they basically set out to provide opportunities for environmental study in meaningful contexts, encouraging investigations of real problems that require the development of techniques for acquiring information through personal enquiry. The centre's courses also demonstrate bioethical principles, contribute to aesthetic appreciation and reflect moral concern. The **urban studies centres** are a more recent development, late 1970's (Saltburn and the Green Dragon, Stockton). Contracting budgets have hampered their growth and limited their impact on environmental matters. They have however, encouraged liaison between schools, planning departments and other organisations concerned with the well-being of the urban environment and have acted as learning bases, teaching resource centres and venues for

community forums for the local schools. As is the case with urban studies centres generally, the local centres have been responsible for the development of a number of town/urban trails, particularly the 'Teachers Trail Guide', and have participated in the preparation of others in cooperation with other bodies eg 'Cleveland Town Trails'. (R I Howarth ed, 1976), produced for the YHA by the Geography Department, College of St Hild and St Bede.

3.4.2 Teesside Polytechnic Inset Award Bearing Courses

Teesside College of Education, now the Department of Educational Studies, Teesside Polytechnic, was established in 1964. Initially Environmental Education tuition was presented in the separate 'mains' study areas of biology, geography and history. Each of the 'mains' areas had substantial field work elements in their courses utilising the contrasting environments within Cleveland County, the North Riding of Yorkshire and South Durham as well as having residential field courses in the Lake District, North Wales and Holy Island, Northumberland. An integrated studies course, 'Environmental Science', was introduced in 1977, in which fieldwork was central to its function and the integration of biological, geographical and historical methodologies the

essence of its organisation. This pattern of education for student teachers in the environmental subjects continued into the Council for National Academic Awards (CNAA) validated Bachelor of Education provisions of the late 1970's until the cessation of initial training at Teesside in 1984. Within the BEd (5-13) and BEd (primary route) degrees, Environmental Education with a strong fieldwork element was part of the 'core' curriculum pursued by every candidate. The majority of the candidates who received their teaching qualifications at Teesside College of Education/Department of Educational Studies, Teesside Polytechnic were mature female students who's lack of mobility between education authorities, due to family commitments, subsequently led to them becoming employed by the Teesside/Cleveland LEA. Most of these teachers, recruited to cater for the 'bulge' of pupils passing through primary schools have remained within the primary sector in Cleveland so that many of the authorities infant/primary schools contain teachers with one or other of the aforementioned qualifications and who therefore possess a practical knowledge of environmental fieldwork supported by a background of Environmental Education theory.

In 1979 the Department of Educational Studies, Teesside Polytechnic, introduced an Advanced Diploma in Environmental Education (ADEE) to meet the growing in-service, (INSET), needs of the areas teachers of environmental studies/science. The Advanced Diploma, now in its seventh cohort of students, operates on a part-time evening basis over a two year period. Great emphasis is placed on the value of fieldwork throughout the course which lists as one of its principal aims

'To utilise diverse environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and first-hand experience'

(ADEE, 1986, p12)

Within the Diploma's objectives are listed means to enable teachers,

'to teach children skills, techniques and ideas necessary for Environmental Education, by means of field and practical class work, and the use of secondary sources,' and 'to develop an enhanced interest and confidence in the use of the environment for educational purposes and a concern for general environmental welfare'

(ibid, p12-13)

Each of the Diploma's six units and three linking sessions have work to be accomplished in the field and are further supported by eleven field days and a residential field course during the two year period. A field-file embodying comprehensive

reports and analysis of the required fieldwork, much of which is school based/focused, forms a significant part of the Diploma's overall assessment. To date six cohorts of teachers have completed the Advanced Diploma from which 76 have been awarded the qualification and amongst which 55 have been in primary education. Of this number only six teachers were from outside of Cleveland County and five of the successful candidates occupied senior management posts (three Head and two Deputy Headteachers). When added to the eighteen, 1986 entrants currently receiving tuition on the ADEE course, thirteen of whom are primary school teachers, and allowing for some schools having presented more than one candidate, statistics still reveal that since its inception the ADEE course has tutored teachers from more than one quarter of the counties primary schools. Further access to primary school teachers within Cleveland County has arisen from the introduction of the one year part-time evening Certificate in Primary Environmental Studies course in 1982. This course has recruited in September 1982 and 1985 and to date 34 primary school teachers from 31 Cleveland schools have gained the certificate. The certificate aims to

'acquaint teachers with a range of observational, investigatory, data-handling and recording techniques employed in environmental studies and to develop their capacities to make practical primary

school use of these in the local and other environments'.

(Teesside Polytechnic, 1982, p2)

An analytical report of the fieldwork carried out during the Polytechnic-based sessions forms a major part of the course assessment. Also, in 1982 the Department of Educational Studies, Teesside Polytechnic, commenced tuition for the Historical Association's 'Advanced Certificate in the Teaching of History' in which significant attention is paid to fieldwork activities in the local environment. Recruitment has been mainly from secondary subject specialists although twelve primary teachers have joined the three cohorts that have functioned since 1982.

3.4.3 The influence of Cleveland County organisations

Numerous County organisations have also been influential in the field of Environmental Education through the provision of short courses or resources. Clevelands **School's Library** and **Museum Services** have sponsored many such activities and have offered school-based support through the provision of materials and displays of work. The Services have been especially active since the 'environmental revolution' reflecting the growing concern of schools and the general public for the quality of the environment and have

produced trails and documentary details focusing on the urban environment. Cleveland's Teachers Centres at Guisborough, Hartlepool, Middlesbrough, Redcar and Stockton flourished during the 1970's during which time they also provided help in urban studies and the development of trails. Now renamed 'Educational Development Centres', (EDC) they have been reduced to three in number located at Guisborough, Hartlepool and Middlesbrough, and continue to provide resource and technical assistance to the LEA's teachers as well as providing venues for short courses amongst which are featured field related studies. Middlesbrough's Department of Planning and Architecture (MDPA), has also been effective in developing good working relationships with schools. In their publication 'Revelations of a Planning Department' they declare their intent 'to foster a greater awareness of the local environment and how this is changed'. The greatest help to primary teachers engaged in streetwork has been through the provision of planning reports, models, industrial promotions, display plans, tape-slide presentations and details of urban renewal. Many primary schools have developed their own trails using the resources provided by the MDPA and have received school based guidance from MDPA staff.

3.4.4 T.U.M.P.A.C.

The 'Tidy up Middlesbrough Public Action Campaign' (TUMPAC) has operated within Cleveland since 1974. Its overall aim has been,

'To encourage the people who live and work in Middlesbrough to become more aware of and interested in their environment, and to seek their active participation in its improvement'

(Tumpac. 1984. p1)

The early efforts of the Tumpac 'campaign', in their attempts to achieve this aim, were directed primarily towards adults. However, in 1975, it was decided to try an additional approach by visiting schools. Since then school work has become one of the 'campaign's' main activities. In 1975, at the start of this phase of their campaign, Tumpac visited nine schools and developed the following field projects:

Acklam Whin	Blue Bell Beck Study;
Berwick Hills	Study of Environmental Problems;
Brambles Farm	Survey of litter and litter bins in their area, exhibition of results in local library;
Corpus Christie	Adoption of garden area;
Ladgate	Study of Environmental Problems;
Pallister Park	Project to improve Middlebeck. Inception of Street Tidy Groups within school;

Park End & Study of Environmental
St Pius Problems

Victoria Road Litter tidy up.

By 1976 Tumpac's contacts with schools had grown both in numbers and content. Sixty-one visits made to twenty-one schools. Tumpack worked in conjunction with the 'Keep Britain Tidy Group', (KBTG) during 1976 in distributing the KBTG's Environmental Education Project Kit, entitled 'Litter an Environmental Project' which was aimed at the ten to eleven age-range. During this year the 'campaign' also cooperated with the Saltburn Urban Studies Centre, set up by St Hild and St Bede College, Durham. A Middlesbrough Town Code Booklet was produced in 1977 which proved of value to primary school pupils engaged in streetwork in the town. Visits to schools reached a peak in 1978, ie 976 visits in 1977; 105 in 1978 and 93 in 1979, a combination of teacher's sanctions in 1979, problems with funding and a change in 'campaign' policy being responsible. Visits, mainly to primary schools continue to date, and many trails, fieldwork guides, resources, learning kits, environmental games and simulations have been provided for these schools by Tumpac who, in their 1982 'Annual Report' stated, 'The most important campaign activity remains the work in the schools' (Tumpac, 1982, p1). Most recently Tumpac have extended their work along an aesthetic

theme through involvement with the 'Art in the Built Environment' project (ABE), which whilst principally focusing on secondary schools has involved some primary pupils, and to field projects for visually handicapped and nursery departments.

3.4.5 The C.L.E.A.R. Centre

An organisation with environmental policies not dissimilar to Tumpac, the **Cleveland Environmental Advice and Resource Centre**, (CLEAR), was established in 1985. CLEAR involves representatives of the Royal Institute of British Architecture (RIBA), the Royal Town Planning Institute (RTPI), Teesside Polytechnic and Cleveland LEA. It has a staff of three full-time and eight part-time members, some of whom are qualified teachers. Its premises and resources include a large lecture room, library, resource collection, tape-slide compilations, photocopying, audio-visual and video facilities. (D Walker, BEE, 1986. p16). The CLEAR Centre's aims are to encourage:-

'an awareness of the environment

an appreciation of how and why it changes;

an ability to make critical responses to changes;

an ability to influence and initiate changes, in all ages and sections of the community.'

(CLEAR, 1987)

CLEAR has already contributed much to the cause of environmentalism throughout Cleveland and as,

'it was decided not to include 'Urban Studies Centre' in the title of the organisation ... because the County of Cleveland is decidedly a mixture of the rural and the urban, encompassing, for example, 10% of the area of the North York Moors National Park'

(D Walker, BEE, 1986, p16)

its role is in developing both streetwork and field studies. Primary pupils following their, 'Central Middlesbrough Urban Trail', use CLEAR's facilities and resources and employ Centre staff in an advisory role. The centre has created numerous urban trails for Cleveland primary schools, mounted exhibitions and developed interest in Cleveland's environment through photographic competitions.

3.4.6 Cleveland County LEA

Cleveland County LEA, whilst offering support to the emergence of Environmental Education during its period of gradual acceptance as a school subject, gave it full recognition in their Curriculum Review document (CCCR); 'Environmental

Studies (Primary) ... document Q.1 (part)', 1979, when they stated,

'Though the terminology may well remain - eg Topic, Project, Theme, Special Study etc, it would seem very evident that at long last "Environmental Studies" is now being recognised and encouraged as being a subject in its own right - certainly in the primary field'.

(CCCR, 1979, p1)

Similar encouragement was provided for environmental fieldwork,

'We assume that pupils will learn more effectively if their learning takes place in the presence of concrete examples.

It is vital therefore, that we give the opportunities enabling the children in our care,

- (i) to study a wide range of objects, old, new, interesting and strange,
- (ii) to visit places, eg churches, buildings, castles, farms, streams, the sea-shore and museums,
- (iii) to observe animals and plants in their natural habitat.'

(ibid)

The Curriculum Review further drew attention to the bio-ethical role of environmental fieldwork,

'The possibilities offered by Environmental Studies provides the ideal vehicle for motivating children of varying abilities to develop and enrich their basic skills and attitudes, whilst at the same time widening their recognition and appreciation of the world around them'

(ibid)

Every school in Cleveland County was issued with the Curriculum Review document in 1979. The document lists the aims and objectives for each of the curriculum areas and describes the basic, intellectual, practical and study skills they believe that these will generate. The lists have been located in appendix A. As Cleveland LEA created these guidelines as policy documents, and as sufficient time, eight years, has elapsed since their distribution, one of the aims of this dissertation will be to examine their levels of implementation and influence in the Environmental Education of primary pupils in County Cleveland, with specific reference to the nature and role of fieldwork.

CHAPTER FOUR -- THE DESIGN OF THE RESEARCH

4.1 Case-Study : Selection of a Research Methodology

The term 'case-study' is used in a variety of ways and as a method of educational research is sufficiently recent for its methodology to form a subject of continuing research. The main purpose in examining case studies here will be in relation to the identification and development of an appropriate methodology for use in this work. There is no intention to become embroiled in the educational debate about case-study which Stenhouse described as 'a dichotomy that changes its verbiage'

'the distinction is now between quantitative and qualitative, now between psycho-statistical and ethnographic and now again between positivist and humanist'.

(L Stenhouse, 1979, p2)

Therefore, from the outset. the style of research methodology is declared as being an **evaluative case-study** employed in multi-site locations in which a

'group of cases (are) studied at such depth as the evaluation of policy or practice will allow (by the use of) condensed fieldwork'.

(L Stenhouse, 1982, p9)

Here the components of fieldwork will include:

- a) the collection or evoking of documents;
- b) the collection and measurement of statistics (questionnaire);
- c) interviewing;
- d) participant observation,

through which it is intended to demonstrate 'methodological triangulation'. **Triangulation** being defined by Cohen and Manion as:

'the use of two or more methods of data collection in the study of some aspect of human behaviour',

(L Cohen and L Manion, 1980, p208)

and its use in the social sciences as being to,

'explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint and, in so doing, by making use of both quantitative and qualitative data'.

(ibid)

Methodological triangulation is defined as,

(the use of) 'the same method on different occasions, or different methods on the same object of study',

(L Cohen and L Manion, 1980, p211)

The latter will have special relevance for this work where the complex phenomena, environmental fieldwork, requires elucidation, and where its varied methods of teaching are to be evaluated.



4.2 Case-Study : Definition and Parameters

Traditionally case-studies have been in such disciplines as anthropology and sociology and have only recently emerged in educational research. In this newer context, case-study is subject to a variety of interpretations which become confusing when writers treat

'educational ethnography, participant observation, qualitative observation, case-study, or field study ... as synonymous'

(L M Smith, 1979, p316)

Adelman, Jenkins and Kemmis similarly saw case-study in educational research as a collective term. Their definition was adopted in 1976 by the Cambridge Conference on the topic.

'Case-study is an umbrella term for a family of research methods having in common the decision to focus an inquiry around an instance. Not surprisingly the term remains a slippery one'.

(C Adelman, D Jenkins and S Kemmis, 1976, pp140-141)

The last decade witnessed a rapid growth in qualitative approaches to educational evaluation resulting from,

'the recoil from the statistical-experimental paradigm ... towards the qualitative and towards the idea of case-study'

(L Stenhouse, 1977, p2)

Cohen and Manion similarly found increasing dissatisfaction with the limitations of more traditional research methods.

'The present antipathy towards the statistical-experimental paradigm has created something of a boom industry in case-study research'

(L Cohen and L Manion, 1980, p99)

In its earliest formulations case-study was portrayed as much in negative terms as its positive attributes,

'case-study is typically characterised in such reassuringly negative terms as non-experimental, non-quantitative, non-positivistic and so on'.

(W R Kenny and A D Grotelueschen, 1984, p37)

However, '**illuminative evaluation**', (a term less frequently employed since case-study gained greater currency), developed a distinctive style of case-study as a mode of inquiry. Illuminative evaluators drew heavily upon qualitative research traditions and paid considerable attention to,

'school-based case-study focusing upon description and interpretation of innovation in context'.

(M Crossley and G Vulliamy, 1984, p195)

Thus Parlett and Hamilton suggested that

'The aims of illuminative evaluation are to study the innovatory programme, how it operates, how it is influenced by the various school systems in which it is applied; what those directly concerned regard as its advantages and

disadvantages; and how students' intellectual tasks and academic experiences are most affected. It aims to discover and document what it is like to be participating in the scheme ... and in addition to discern and discuss the innovations most significant features, recurring concomitants and critical processes. In short, it seeks to address and to illuminate a complex array of questions.'

(D Hamilton et al, 1977, p10)

Therefore illuminative evaluation accepts the complexity of the educational context, makes no attempt to reduce it to a series of isolated variables or categories but instead sets out to examine a process in which it deals with feelings, experiences and attitudes. As a research strategy the selective model derived from illuminative evaluation may therefore employ a variety of techniques: direct observation, interviews, questionnaires, documentary analysis etc all of which are central to the development of this research. The 'new wave' curriculum evaluation maintained a qualitative methodological approach in a distinctive style of case-study as a mode of disciplined inquiry. Stake and Day in arguing for a 'natural orientation', (1978), and House for a 'transactional approach', (1980), each support the view that case-study is almost entirely qualitative in methodology and presentation.

Miles and Huberman in their examination of the qualitative paradigms commented on the attractiveness of qualitative data.

'They are a source of well-grounded, rich descriptions and explanations of processes occurring in local contexts. With qualitative data one can preserve chronological flow, assess local causability, and derive fruitful explanations. Finally, the findings from qualitative studies have a quality of "undeniability", as Smith (1978) has put it.'

(M B Miles and A M Huberman, 1984, p15)

Whilst largely upholding this viewpoint Atkinson and Delamont, (1985) place almost exclusive emphasis for case-study on 'process' rather than 'product' or 'outcomes' believing that the case-study approach,

'denies the applicability of so-called scientific methods of inquiry (and) rests on the belief that the innovation to be examined cannot be treated simply as a set of objectives, or as variables to be measured (rather) the reality to be investigated is a complex social reality of everyday life in institutional settings'

(P Atkinson and S Delamont, 1985, p27)

The denial of scientific methodology is at variance with the research procedures to be adopted by this research, as already outlined above, which is in greater sympathy with the view of Nisbet and Watt, (1984) who stipulate that

'case-study is more than an extended example or anecdote interestingly narrated'.

(J Nisbet and J Watt, 1984, p74)

Nisbet and Watt are supportive of Walker's definition of case-study.

'Case-study is the examination of an instance in action'

(R Walker, 1983, p33)

They present their definition with similar scientific emphasis,

'case-study is a systematic investigation of a specific instance'.

(Nisbet and Watt, op cit)

The defence of scientific method and systematic gathering of evidence, presented here, is described as

'the method attempts to give a fair and accurate account of a specific case in such a way as to allow the reader to penetrate the superficial record, and also to check the author's interpretations by examining, an appropriate selection of the objective evidence from which the case study has been built'

(J Nisbet and J Watt, 1984, p74)

This point of view had previously been propounded by Shaw, 1978, who additionally argued that,

'case-studies set out to concentrate attention on the way particular groups of people confront specific problems, taking a holistic view of the situation. They are problem-centred, small-scale, entrepreneurial endeavours ... but there

is a readiness to reconceptualise the problem as the data accumulates'.

(K E Shaw, 1978, p2)

This research accepts the essence of Shaw's holistic view believing that it would be inadequate to merely study parts of a situation. Instead the techniques to be employed would gather data on a number of aspects of the setting in order to create as complete a picture as possible. The development of this research method also accepts Shaw's definition of 'small-scale, entrepreneurial endeavours', at the outset, but, like Shaw, supports the qualitative research views of Patton that

'a qualitative research strategy is inductive in that the researcher attempts to make sense of the situation(s) without imposing pre-existing expectations on the research setting. Qualitative designs begin with specific observations and build toward general patterns'.

(M Q Patton, 1980, p40)

In his work, 'Three Good Reasons For Not Doing Case Studies in Curriculum Research', Walker gives as one of his reasons,

'case-study research provides a biased view, a distorted picture of the way things are'.

(R Walker, 1983, p156)

Shaw and Patton attack this view and in their defence of the qualitative research strategy of

case-study, (above) a consideration of the 'naturalistic inquiry' of qualitative designs would appear to counter Walker's contention ie

'Qualitative designs are naturalistic in that the researcher does not attempt to manipulate the research setting ... the point of using qualitative methods is to understand naturally occurring phenomena in their naturally occurring states'.

(M Q Patton, 1980, p41)

The need to avoid bias is paramount, and the methods devised to gather data for case-study must aim to minimize investigator manipulation. This research accepts the constraints of naturalistic inquiry and supports the definition presented by Guba,

'Naturalistic inquiry is a discovery oriented approach which minimises investigator manipulation of the study setting and places no prior constraints on what the outcomes of the research will be'.

(E Guba, 1978)

This research further accepts the mandate 'to be holistic, inductive and naturalistic, means getting close to the phenomenon under study' (Patton, (1980), p43) The case-study's qualitative methodological style attempts to understand the settings under study through direct personal contact - fieldwork, and accepts Stenhouses' advice to use **narrative** as the principal form of presentation as it has 'two

great strengths, it is simple and direct to read and it is subtle'. (L Stenhouse, 1982, p24)

4.3 The Case-Study Fieldwork

4.3.1 The Population upon which the Survey is Focused

The target population upon which the various components of fieldwork focused were the 211 primary schools located in Cleveland County, housing a total of 51,745 pupils. (1985/86 figures, Cleveland LEA). Whilst the majority of the 211 schools (147 in number) were organised to teach the full primary age-range 4+ to 11 years, there were 32 infant schools catering for the 4+ to 7 year olds and 32 junior schools for the 7+ to 11 year age bands. The schools were divided into ten geographical sub-regions of Cleveland County, and are shown both below with their accompanying numbers of primary-phase pupils, and on map I.

A.	Hartlepool area	8,178 pupils.
B.	Billingham area	3,425 pupils.
C.	Stockton area	7,997 pupils.
D.	Eaglescliffe/Yarm/ Kirklevington area	1,955 pupils.
E.	Thornaby area	2,659 pupils.
F.	Middlesbrough (Central and East) area	11,178 pupils.
G.	Middlesbrough (Marton/ Nunthorpe/Hemlington/ Coulby Newham area	3,598 pupils.

H.	South Bank/Grangetown/ Eston area	3,660 pupils.
I.	Redcar/Marske area	4,258 pupils.
J.	Guisborough/Skelton/ Loftus East Cleveland area	4,837 pupils

The numbers of pupils in individual schools varied widely. The largest schools, according to roll, were mainly located in the inner-urban areas of the principal towns of the county. Twenty schools had more than 380 pupils, eleven of these exceeding 400 pupils and five, more than 450 pupils. The largest school, located in Area F, totalled 468 pupils. By contrast fourteen schools had less than 100 pupils on their rolls, four registered less than 60 pupils, whilst one school in Area F recorded the lowest number of 55 pupils. It was noted that nine of the fourteen schools with less than 100 pupils had religious affiliations, of the five other schools, four lay in rural settings and the other in an inner urban area of declining population. (Source of the statistics: Cleveland Education Committee, 'List of Primary Schools for 1985/86')

With the number of variables involved ie school phase - infant, junior or primary; size and location of the school; contrasting socio-economic catchment areas; complexities of four contrasting data collection components of fieldwork -

collection of documents, collection of statistics, interviewing and participant observation, it has been necessary to employ a range of survey sampling practices. A further factor affecting this decision has been a time conscious one where, certainly two of the fieldwork strategies - participant observation and interviewing - have been most time consuming and have therefore required a carefully restricted selection of schools. The fieldwork sampling strategies are examined below in relation to their fieldwork/data collection components.

4.3.2 The Collection and Evoking of Documents

With a view to achieving as wide a comparative base as possible in the initial formulation of views concerning environmental fieldwork practices in Cleveland schools during the primary phase, and in order to guard against personal bias, it was decided to gather documentation from a range of schools and professional bodies involved in this field. The principal aim of the activity was the creation of a bank of LEA, school and institutional focused data from which 'state of the art'/'where are we now' statements may be generated. It was also intended to employ the data bank to identify questions to be subsequently introduced into both the projected

questionnaire and interview surveys. This first phase of data collection involved the use of postal requests, school and other visits to institutions providing resources, facilities or teaching involved in primary focused environmental fieldwork for Cleveland County pupils.

In October, 1985 a pilot letter requesting the provision of relevant documentation, (see appendix), was sent to twenty Cleveland primary schools, two being selected, at random, from each of the ten geographical sub-divisions shown above. The letter asked for the provision, or loan, of documents or materials relating to field work activities with which the schools had been involved but did not specify the exact nature of such evidence. There were fifteen replies. Ten enclosed useful documentation mainly in the form of school trip itineraries, trails in the school's immediate environment and evidence of work, or competitions, with an environmental organisation such as TUMPAC or CLEAR. Amongst some of the replies enclosing data, and in the case of each of the other five returns, requests were made to be more specific about the nature and range of required documentation. A revised version of the letter was sent out in November, 1985, to the headteachers, or their representatives, of 106 of the counties primary schools, (incorporating those

of infant/junior status), representing a 50% sample. On this occasion both 'purposive' and 'convenience' sampling procedures were utilised ie

'On purposive sampling, the researcher handpicks the cases to be included in his sample on the basis of his judgement of their typicality'

(L Cohen and L Manion, 1980, p77)

The purposive sampling aimed to take into account the socio-economic hinterlands of schools, their size, religious affiliations, their rural-urban locations and the nature and relationship of school buildings to their grounds. Convenience sampling, is described by Cohen and Manion as

'involving choosing individuals to serve as respondents ... (where) captive audiences such as pupils or student teachers often serve as respondents'

(ibid, p76)

Convenience sampling, involving past course members of the Teesside Polytechnic, Advanced Diploma in Environmental Education and Certificate in Environmental Studies, was used in order, through a 'captive audience', to generate a good response.

Seventy two headteachers, or their representatives, replied to the letter and in each case either provided varying amounts and types of data or the opportunity to view such material

through the offer to visit their school. The most widely provided documents were teachers' hand-outs relating to biological, geographical or historical fieldwork frequently in the form of trails and supported by specimens of pupils' work. A number of schools provided, mostly on loan, copies of their brochures which the LEA obliged them to produce and review annually. These often gave interesting details of the school's location, its buildings, school grounds and outline syllabuses. Also of value were lists of environmental resources, (measuring and recording equipment and relevant school textbooks) which were often useful guides to fieldwork activities or the potential for such. Pride in past achievements in environmental matters was reflected in numerous photographic records including tape-slide and video sequences.

In addition to the school-originated data collection other valuable information was obtained as a result of visits made to the offices of TUMPAC and the CLEAR Centre in January, 1986. As explained previously, both these organisations have worked closely with Cleveland schools and have produced numerous trails and streetwork exercises either for specific school locations or for use by Cleveland schools generally. The full range of this material was presented for

inspection, a range of data relating mainly to streetwork in the inner-urban area of Middlesbrough was obtained and discussions with a number of staff were held on the nature of fieldwork conducted to date by both organisations for specified Cleveland primary schools.

An examination of Cleveland Counties 'Primary Environmental Studies - Curriculum Review document (Cleveland LEA, 1979) coupled to visits to the Guisborough, Hartlepool and Middlesbrough Educational Development Centres in January, 1986, where data relating to the LEA's short-courses in Environmental Education was acquired, revealed the local advisory services stance and thus outlined official policies that influenced the school's environmental practices. The level of implementation of the LEA's policies is explored later. This preliminary phase of fieldwork, data collection, proved to be most fruitful, for not only did it provide a considerable quantity, and quality, of material at an early stage of the research, it also provided a parade of opportunity through school and other institutional visits from which the essence of the questionnaire and interview surveys emanated. Further to this, the collection and evoking of documents formed the startpoint for the school and field-based participant observation sequences.

4.3.3 Collection and Measurement of Statistics - The Questionnaire

i) The Purpose of the Questionnaire

The use of a questionnaire in this case-study research which has declared itself as being qualitative in style is defended by Stenhouse in 1982 who stated that

'the contrast is not between quantitative and qualitative, but between samples and cases'.

He explained this statement further

'This implies that the creation of statistical data by measurement or the gathering and use of statistics would have to be treated as descriptive of the case rather than as a basis for generalising through statistical inference'.

(L Stenhouse, 1982, p22)

A further reason for utilising a questionnaire acknowledges the matter of economy,

'The obvious advantage of using questionnaires ... is economy in cost, time and labour'

(J D Nisbet and N J Entwistle, 1970, p44)

The questionnaire to be employed in this work was designed with a view to studying certain aspects of environmental fieldwork in the primary school context. Because of the complexities associated

with an understanding of the role of fieldwork in Environmental Education it was decided to restrict the range of the questionnaire survey to a consideration of the nature of fieldwork and to explore ^{its} role through the use of an interview survey and participant observation. The components of the questionnaire thus aim to provide understanding of the nature of fieldwork and Environmental Education in six areas:

- (a) the place of environmental work in the school curriculum including the form it takes i.e. multi-disciplinary, interdisciplinary etc; how it is timetabled, including follow-up activities, and teacher responsibility for environmental work;
- (b) the location of environmental fieldwork: in the school or its grounds; use of the local and distant environments and the selection processes involved;
- (c) accommodation: classrooms, laboratories, activity rooms, school grounds or yard; opportunities or constraints for environmental fieldwork;
- (d) the provision of learning resources for fieldwork by the school and external agencies;

- (e) recording and assessment of pupil attainment in field related activities;
- (f) the longer term pattern of environmental fieldwork experiences.

The open-ended style of the questionnaire enabled respondents to complement this list and many provided supplementary details in accompanying letters.

ii) **Administration of the Questionnaire**

The target population for the questionnaire consisted of the 211 infant, junior and primary schools of Cleveland County. A pilot questionnaire was planned and eight schools were selected, using a random number procedure, in which to test its efficiency. The pilot questionnaire was delivered in person, to each of the schools, at the beginning of February, 1986, and an interview was sought with the headteacher, or their delegate, to explain its purpose. The decision to visit each school, rather than send the document by post, was taken on the basis of the improved opportunity to explain its purpose, to establish possible links for future work, and also the belief that whilst postal circulation is cheaper, personal contact is often quicker. The reception at the schools was welcoming, possibly

as a result of previous professional contacts with headteachers or members of their staff, although most commented on the amount of time that would be required to complete the document. The headteachers were asked to comment on the appropriateness of the questionnaire in the light of Davidson's views on the 'ideal questionnaire' which he saw as 'possessing the same properties as a good law', and as being

'clear, unambiguous and uniformly workable. Its design must minimize potential errors from respondents ... and coders. And since people's participation in surveys is voluntary, a questionnaire has to help in engaging their interest, encouraging their co-operation, and eliciting answers as close as possible to the truth'.

(J Davidson, 1970)

Each agreed to circulate the questionnaire to members of staff and to return it on completion through the Cleveland County LEA internal mailing system. The eight completed questionnaires were returned during February, 1986. On receipt of the replies the questions were re-examined for their ability to generate useful responses. The headteachers had commented favourably on the open-ended style of the questions which had allowed the employment of 'a width of response - succinct to expansive', and unlike many of the observations contained in the literature concerning questionnaires, had been 'glad that their

initiative had not been stifled by being restricted to placing ticks in boxes'. To that extent, and with only minor amendments, the questions were retained in their original form (see appendix B)

This slightly modified version of the questionnaire was dispatched in March, 1986, to 106 Cleveland Primary Schools. These schools were selected by use of the same purposive and convenience sampling procedures described previously and were, therefore, the same schools used in the data collection stage, excluding the 34 who had failed to respond, which were replaced by 34 other schools selected by the use of the same principles. Although it was never intended to generalise the findings of the survey beyond the sample in question, in view of the relatively small population of schools surveyed, and in order to collect meaningful data that would generate valid general statements pertinent to the Cleveland sample, a high degree of response was required. A return of the order of 80% was aimed for in order to reduce bias from non-response.

'Studies which make use of postal questionnaires are ... particularly prone to sample loss through non-response. Unless returns in excess of 80% can be gained, bias due to non-response can seriously affect the representativeness of the sample'

(Open University, 1973, p47)

A first reminder together with another copy of the questionnaire was sent out in April, 1986, and a second reminder and further copy of the questionnaire were sent in June 1986. Finally, as a result of personal visits to eight of the participating schools in June, 1986, a total of 84 questionnaires had been returned, almost the 80% sample aimed for.

4.3.4 The Interview Survey

i) Questionnaire and Interview Survey Interrelationship

The intention to gather more information of a qualitative nature through conducting a series of interviews has already been indicated in this chapter. In particular attention was drawn to the need to explore the role of fieldwork in Environmental Education by using more sophisticated techniques in a semi-structured interview, than could be incorporated in a questionnaire. That the questionnaire is a limited tool for data collection is recognised by many authors.

'The questionnaire method should be used only for relatively simple and factual inquiries'

(J D Nisbet and N J Entwistle, 1970, p44)

Further shortcomings of the postal questionnaire are identified as -

There is no opportunity to probe beyond the given answer, to clarify an ambiguous one, to overcome an unwillingness to answer a particular question'

(C A Moser and G Kalton, 1973, p260)

and -

'The problem with ... questionnaires is that they are unlikely to give an accurate portrayal of the realities of teaching, in a natural or conventional setting. Questionnaires are prone to the reproduction of rhetoric, where respondents are often unwilling to admit failures for fear they will be blamed for them, and questionnaires also have difficulty focusing upon either the process or the anticipated outcomes of innovation'

(M Crossley and G Vulliamy, 1984, p198)

A further difficulty encountered in the use of questionnaires was the inability to determine the origin of the response - in some cases, the response was obviously a collective one, as revealed by the number of different styles of handwriting. The amount, or lack, of consultation which had taken place was not evident and consequently it was hoped that by interviewing staff a fuller picture might be gained.

It was for the combination of these limitations of the questionnaires effectiveness that its use was restricted to the collation of factual detail of

the nature of environmental fieldwork. The interview survey was regarded as complementing the findings of the questionnaire, which had itself built upon the data collection phase. Defence of this combined approach is given by Moser and Kalton,

'It may be noted that some of the disadvantages of the mail questionnaires can be overcome by combining it with interviewing'.

(C A Moser and G Kalton, 1973, p261)

Whilst Stenhouse is supportive of interview strategies and finds them

'at present better placed than observation' ... in gathering case-study evidence,

(L Stenhouse, 1979, p9)

Crossley and Vulliamy are still cautious about what they describe as 'brief fact-finding visits', believing that poorly structured interviews are

'prone to reproduce the rhetoric of policy, because such visits can rarely delve below the surface of the 'official' version of the process of innovation'

(M Crossley and G Vulliamy, 1984 pp198-199)

With such caution in mind the process of interviewing and recording has been afforded attention to detail in this research, which has opted for a 'research-interview' procedure defined by Cannell and Kahn as,

'a two-person conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information, and focused by him on content specified by research objectives of systematic description, prediction or explanation'.

(C F Cannell and R L Kahn, 1968)

The interviewing format adopted a semi-structured organisation in which the sequence and wording of the questions were largely determined by means of a schedule although, being semi-structured, the interviewer was allowed freedom to make modifications during the interview in order to accommodate spontaneous developments. (see appendix C)

ii) **The Purpose of the Interview Survey**

The principal purpose of the interview survey was to ascertain the respondent's perception of the role of fieldwork in the Environmental Education of their pupils. To achieve this level of understanding the semi-structured interview questions examined the aims and objectives of Environmental Education previously explored in chapter three. To promote methodological triangulation the interview schedule commenced with a limited examination of the nature of environmental fieldwork, demonstrating a degree of overlap with the questionnaire. Here the respondent's background, his/her school, its

facilities and location, and the environments most frequently used, local or distant, were briefly discussed.

The second section of the schedule examined the aims of fieldwork for the primary phase as set out in the HMI discussion document, 1979. These were 'ethical'; 'scientific'; 'linguistic'; 'mathematical'; 'physical'; 'social/political'; 'aesthetic' and 'spiritual', (consult chapter three for detail).

A further purpose of the second section of the interview schedule was to focus attention upon the respondent's knowledge and implementation of the Cleveland LEA's curriculum guidelines as presented in the Curriculum Review document Q.1 'Environmental Studies (Primary), 1979. In particular respondent's answers were later compared with the C.C.C.R.'s specified roles for environmental fieldwork i.e.

developing the ability to think and enquire purposefully;

encouraging in the child critical faculties and disciplined thinking;

utilising the child's natural curiosity and developing a desire for further knowledge;

helping the child to understand and be capable of using specific conceptual tools;

fostering in children both a sympathy and an empathy with people in different places and times;

developing an understanding of the inter-relationship of man, his culture and biophysical surroundings;

developing basic tool skills and stimulating through research, experimentations and observation;

enabling children to make personal value judgements;

enabling children to communicate their findings and to enjoy a wide range of learning situations.

The purpose of the final section of the interview schedule was to examine the role of environmental fieldwork in developing bioethics. (see appendix C).

iii) **Administration of the Interview Survey**

Thirty two headteachers or their delegates, usually the scale post holder for Environmental Education/Studies were interviewed during the period April, 1986 to March, 1987. Cohen and Manion's advice was heeded that,

'a sample size of 30 is held by many to be a minimum number ... if the researcher plans to use some form of statistical analysis'

(L Cohen and L Manion, 1980, p77)

However, as the intention was only to acquire an understanding of the select cases without generalising upon all of them, a purposeful

sampling strategy was employed. As with the other components of fieldwork, described above, this also involved convenience sampling as the principal respondents were drawn from the captive audience of existing, or previous, course members of the Advanced Diploma in Environmental Education or the Certificate in Primary Environmental Studies, Teesside Polytechnic. The value of convenience sampling extended into economy of effort, as it was possible to interview a number of the respondents at the Polytechnic so reducing both time and distance of travelling. A further advantage accruing from this form of sampling was the willingness of the respondents to complement the results of the interview with a related written contribution. Apart from wishing to include representation from each of the ten geographical groups of primary schools there was a need to represent the variety of environmental factors pertaining to sub-regions within the ten areas, which could influence environmental fieldwork practices. To this end dimensional sampling was also employed. Defined by Cohen and Manion as

'involving the identification of various factors of interest in a population and obtaining at least one respondent for every combination of those factors'

(L Cohen and L Manion, 1980, p77)

In order to put this sampling technique into effect there was a need to relate sampling to geographical context. The following table reveals the relationships between geographical location, number of schools, distribution of primary pupils and the application of interview procedures.

Area	Number of primary schools	Number of primary pupils	Number of interviews
A	32	8,178	2
B	16	3,425	2
C	32	7,997	3
D	10	1,955	2
E	11	2,659	1
F	41	11,178	12
G	15	3,598	2
H	15	3,660	3
I	18	4,258	2
J	21	4,837	3
<hr/>			
Totals	211	51,745	32

INTERVIEW SURVEY RELATED TO PRIMARY SCHOOL LOCATION AND ROLL

The decision to participate in twelve interviews with respondents from schools located in Area F was only partly determined by the overall number of primary schools in that area (41), with its correspondingly large number of pupils (11,178). Greater attention was paid to the unique

opportunities provided by contrasts within the area which may influence fieldwork. Area F extends over a substantial sector of Central and East Middlesbrough and includes many zones of socio-economic contrast: the central business district; an area of immigrant population; an area of decaying urban fabric relating to the decline of the town's heavy industry; the present industrial belt and its related warehouse zones; groups of administrative buildings; a large zone of urban renewal; inter-war and post 1946 housing estates as well as green areas. The rateable values of property, population densities, proportions of rented accommodation, pattern of criminal records etc, serve to reveal considerable social variation within the area.

An analysis of the schools in Area F also reveals variations of size, age and phase designation. The area includes the two primary schools with the smallest number of pupils on their roll, 55 and 57, and four of the schools with more than 400 pupils on the roll; 442, 462, 466 and 468, the latter being the largest primary school in County Cleveland. Of the remaining 207 Cleveland primary schools only seven have in excess of 400 pupils. Thus Area F incorporates the largest and the smallest primary school units. The split between infant, junior and primary schools was a further

reason for progressive focusing of the case study on this area which contains 31 primary schools, 5 infant schools and 5 junior schools. The interview survey recognised this divide. The age of the schools, from late nineteenth century to the 1980's in construction, was also taken into consideration as this normally reflected a varied range of facilities eg lack of playing fields as opposed to location within a green area, that could influence the opportunity and provision for environmental fieldwork.

After early piloting, schedules were devised and used in the first three schools visited. The schedules were then revised, mostly to improve the layout, but also to include questions about follow-up possibilities. It is this later version which is included in appendix C.

The semi-structured interview schedules were used as guides, and not as tramlines although care was taken to ensure that the interview was a two-way process in which a constructive exchange of views took place. However, during the interviews there was no compunction about prompting along the lines indicated on the schedules, ensuring that it remained a controlled situation. At each interview session the respondent was briefed as to its nature and purpose, an attempt was made to

make the respondent feel at ease, and the interview carried out as harmoniously and as easily as possible. On the few occasions where taped conversations were held the respondent took charge of the tape recorder. Care was taken to stress the independence of the response required and the confidentiality with which it would be treated.

4.3.5 Participant Observation

i) The Purpose of Participant Observation

The pattern of research involved in this case-study has been one of progressive focusing from the width of data collection and questionnaire distribution, to the narrowing promoted by the purposeful sampling strategies of the interview schedule. The use of participant observation techniques allow further adjustment to the narrowing focus of the condensed fieldwork whilst aiming to maximise the variation in site selection. Patton defended such a strategy,

'if programs are spread ... some in rural areas, some in urban areas, some in suburbs - but sufficient resources are not available to randomly select a sufficient sample to generalize ... the evaluator can at least be sure that the geographical variation among sites is represented in the study. By attempting to increase the diversity or variation in the sample, the evaluator will have more confidence in those patterns that emerge as common among sites, while at the same time being able

to describe some of the variation that has emerged to make programs unique as they adapt to different settings'.

(M Q Patton, 1980, p102)

Participant observation is well suited to this role as it is an 'omnibus field strategy' (Patton, 1980, p127) which Denzin describes as

'simultaneously combining document analysis, interviewing of respondents and informants, direct participation and observation and introspection'.

(N Denzin, 1978, p183)

Stenhouse similarly valued observation seeing its role as

'perceiving and recording events, behaviour (including speech) or appearances in the case study',

(L Stenhouse, 1982, p18)

and saw fully participant observation as,

'filling an available participant role in the social setting observed'

(ibid)

Bailey considered the greatest benefit from participant observation to be that

'the investigator is able to discern ongoing behaviour as it occurs and is able to make appropriate notes about its salient features' and that 'the researcher can develop a more intimate and informal relationship with those he is observing, generally in more natural environments than those in which experiments and surveys are conducted'.

(K D Bailey, 1978, p6)

Such a research method would therefore appear most suited to use with children and their teachers engaged in environmental fieldwork. The method allows the participant observer to be fully engaged in experiencing the setting under study while at the same time trying to understand that setting through personal experience, observations, and talking with other participants about what is happening. This was possibly best expressed by Patton,

'Experiencing the program as an insider is what necessitates the *participant* part of participant observation. At the same time, however, there is clearly an *observer* side to the process. The challenge is to combine participation and observation so as to become capable of understanding the program as an insider while describing the program for outsiders.

(M Q Patton, 1980, p128)

The critics of participant observation research raise questions about two types of its validity. Believing participant observation study to be subjective and idiosyncratic raises questions concerning its external validity, ie are the results of this one piece of research applicable to other situations? There are also fears that the observer's judgement will be affected by his close involvement. No claims are made in this research that any of the observations lead to generalization but rather they are seen as relating only to the cases under study. Therefore

participant observation techniques provided a means of working directly with groups of pupils and teachers and an opportunity to share and record evidence of the excitement and the problems of field-based environmental study without needing to bow to the spectre of generalization.

ii) **Participant Observation Administration**

The participant observation studies took place throughout the full research period, commencing during the data collection phase initiated in October, 1985. It was quickly recognised that such studies were very time consuming and that if they were to be effective they would need to take place over an extended period of time in order to allow the development of informal relationships between the observer and the observed, and that the number of schools to be involved would need to be small. This required early identification of schools that regularly participated in environmental fieldwork and a careful selection from these schools of those using;

- a) fieldwork in rural environments;
- b) trails or streetwork in urban environments;
- c) contrasting environments according to season;

- d) interdisciplinary or multi-disciplinary approaches;
- e) the school and/or its grounds;
- f) the immediate locality of the school;
- g) distant environments.

Three other factors were involved in the participant observation school selection procedure, these were the size of school roll, the school phase (infant, junior or full primary), and location within Area F. (convenience sampling). On the basis of the criteria outlined above largely drawn from previous professional links eight schools were selected, their distribution within the Cleveland LEA's sub-regions being: one in each of areas A, C, D, G, H, and J, and two in Area F. Respondents from these schools also participated in the interview survey.

Opportunities for participating in environmental fieldwork with pupils from the selected schools varied greatly. Two of the schools were only visited in the field on one occasion, only for a short period of time, and with little opportunity to participate in follow-up activities. Two other schools were visited twice but in each instance their fieldwork related to the same environment. The selected schools located in areas A, D and J offered better opportunities for both field-based

and classroom collection and analysis, the creation of a weather station, hedge dating, graveyard studies and fabric analysis. Opportunity was afforded to ascertain levels of basic, practical and intellectual skills. One school, in Area C, was visited nine times during the research period. Work was carried out in school, the locality and distant environments. Streetwork and rural trails were devised.

CHAPTER FIVE - THE CASE-STUDY FIELDWORK RESULTS : AN ANALYSIS

The analysis of the results gathered by the four components of the fieldwork described in chapter four i.e. the collection of documents; the questionnaire; interviewing; participant observation, is presented in three sections.

Section A, which incorporates the 'parade of opportunity' emanating from the documentation provided by the schools, principally examines the results of the questionnaire in order to explore the **nature** of environmental fieldwork undertaken by primary phase pupils in Cleveland County.

Section B concentrates upon the findings of the interview survey, with additional focusing arising from the participant observation exercises, in an attempt to examine the **role** of fieldwork in the Environmental Education of Cleveland's primary-age pupils.

Section C briefly examines patterns emerging from analysis of the overall fieldwork results and builds into a summary of the total investigation - the conclusions of the case-study.

5.1 SECTION A: THE QUESTIONNAIRE ANALYSIS

The 84 schools who replied to the questionnaire housed a total of 20,968 pupils and ranged in individual size from 57 to 468 pupils. They covered a range of organisation: 45 primary schools (4+ to -11 years); 21 junior schools (7+ to -11 years); 18 infant schools (4+ to -7 years), and were selected by the use of purposive and convenience sampling described in chapter 4.

In the first instance, the replies from the full number of participating schools, (including the evoked documentation), were examined in order to identify possible patterns and to make generalised statements. Later, in Section C of the analysis, these findings were amalgamated with the relevant information yielded by the interview and participant observation surveys in order to identify particular significance using the criteria: school location; size of the school; different forms of school organisation; influence of regional organisations and the teachers' professional backgrounds.

In view of the large amount and diverse nature of the documentation provided by the schools, and that generated by the 84 responses to the questionnaire, heed has been taken of Nisbet and Entwistle's advice,

'A special effort should be made to keep this section, (discussion of results), under control, and to limit conclusions to what can reasonably be justified by the evidence'.

(J D Nisbet and
N J Entwistle, 1984, p254)

Narrative is used as the form of presentation as it has,

'two great strengths, it is simple and direct to read and it is subtle'.

(L Stenhouse, 1982, p24)

Presentation of the main statistics within the analysis is a further attempt to conform to this advice although it is at variance with Miles and Huberman.

'narrative text is an extremely weak and cumbersome form of display. It is hard on analysts because it is dispersed over many pages it is sequential rather than simultaneous ... only vaguely ordered, and it can get monotonous and overloading'.

(M B Miles and A M Huberman, 1984, p79)

5.1.1 The Place of Environmental Work in the Primary School Curriculum, Cleveland County.

5.1.1 (i) The form it takes

The questionnaire responses revealed that every school participated in some form of environmental work, using the specific title of Environmental

Studies. Fifteen per cent of schools studied traditional subjects of which, in order of prominence, science, geography and history were recorded as being the vehicles for Environmental Education. The remaining schools operated 'hybrid' systems where Environmental Studies operated in the infant department and traditional subjects during the junior phase. Regardless of the title given to their environmental work most schools followed a thematic approach and encouraged subject integration whilst voicing their concern that there should, 'not be forced integration just for the sake of it'. A large proportion of respondents revealed subject integration in Environmental Education extended into language, mathematics and art as well as the 'core' subjects of geography, history and science, 'especially in the preparation for, execution and recording of environmental fieldwork'. Over twenty per cent of the responses showed that the nature of environmental work was influenced by the subject content of the school's television broadcasts either at the start-point of a topic or as the entirety of the Environmental Education programme.

The amount of time devoted to environmental work varied considerably from school to school. Forty five per cent reported a time provision for this

subject area in excess of three hours per week, with one school scheduling five hours of its time-table for environmental studies. These schools normally included environmental issues as part of their 'topic' or 'project' time and frequently incorporated environmentally orientated television programmes into the time allowance. Thirty per cent of respondents showed a two to three hour weekly provision for environmental studies with a further twenty per cent providing between one and two hours weekly. Not all schools were convinced of the need for Environmental Education, or else expressed ignorance of its purpose. Four schools indicated a time allowance of less than one hour per week for environmental studies subjects, giving as their reasons, 'lack of commitment to the subject by the headteacher', 'lack of staff interest/knowledge of environmentalism', 'lack of time in an already over-crowded curriculum with environmental studies being low priority, especially with the younger pupils'. Discounting television broadcasts, that were extra to the school's published environmental programme, and evidence of peripheral subject association, the results of the questionnaire reveal that the majority of the schools provided between two to three hours per week for environmental work.

5.1.1 (ii) Time-tabling Environmental Work

The time-tabling of environmental work is revealed as having a high degree of flexibility, with seventy seven per cent of schools showing that this work was not formally time-tabled other than to provide opportunities for groups/classes to work collaboratively, and for the reception of television and radio broadcasts. Even the latter's inflexibility is noted as having diminished with the introduction of video recorders. The flexibility of the time-table was shown as of particular importance in the late spring and summer terms when more environmental fieldwork activities took place. These required both more time and, 'owing to the use of discovery methods and problem solving experiments necessitated greater freedom from the constraints of a formal time-table'. A large proportion of the twenty respondents who declared that environmental work was, 'regularly and formally timetabled' in their schools, included the teachers who had earlier declared that this work was organised under traditional subject headings. The majority of the seventy seven schools that reported flexible programmes further indicated that programming of environmental work extended well beyond the weekly schedule to fashion half-termly patterns. Three headteachers who

completed the questionnaire presented educational reasons for the flexible pattern of environmental studies but in each case this work was only scheduled for afternoon sessions. Two of these headteachers expressed their concern that 'such scheduling may suggest less importance being attached to this subject area in the minds of both staff and pupils'.

5.1.1 (iii) Environmental Studies Posts of Responsibility

Seventy three per cent of participating schools had a teacher with designated responsibility for environmental work, just over half of these were environmental studies scale-post holders and two were deputy headteachers. A headteacher from one of the smaller schools declared that he, 'looked after environmental studies for the school', but subsequent details gleaned from the questionnaire established that this responsibility only extended to ordering and storing books and equipment. The persons with designated responsibility for environmental work had been drawn from a wide variety of academic backgrounds, as study of their initial qualification shows. (See Section C). Geography and Art specialists, with forty and sixteen per cent of the total, respectively, provided the

main recipients for the posts of responsibility, a factor which is reflected later in the nature of environmental fieldwork, (where geographical activities are predominant), and in recording methods, (where geographical and art, skills and techniques are well represented). Mathematicians provided ten per cent of environmental studies post-holders, reflecting the increasing use of computer-assisted learning techniques in this field of study. The role and functions of the teacher with designated responsibility for environmental work varied greatly between the schools. Thirty seven per cent of the responses show post holders to be concerned with ordering, up-dating, storing and maintaining relevant resources. Considering the nature of Environmental Education, its wealth of resources, and the wide-range of equipment required by its field-based activities this high percentage is readily explained.

Respondents revealed twenty two per cent of duties to be associated with the design and documentation of the environmental curriculum and fifteen per cent with the maintenance of school-wide records of environmental work. Eleven per cent of scheduled duties related to arranging environmental field-trips with a further eleven per cent recording leadership of staff discussions on environmental

issues. Sadly, there was little evidence of subject-specialist teachers exchanging classes for environmental work with seventy seven per cent of respondents recording no exchange taking place at all, thirteen per cent only occasionally, with a lowly ten per cent actually involved in exchange of classes on a regular basis.

5.1.2 The Nature of Environmental Fieldwork

5.1.2 (i) Environmental Fieldwork in the School and its Grounds

Considerable use was made of the school premises for environmental fieldwork by over ninety per cent of the schools. Maps and plans, obtained during the preliminary phase of document collection, revealed many schools making exciting use of quadrangles, courtyards, boundary hedges and gardens. One school, in an inner-urban area of social deprivation, provided a plan of their chequerboard garden; pond; bog-garden; experimental soil areas; butterfly garden; food plant distribution; native wild-flower patch; fabric, visual and aroma trails. Care had been taken to plan these ventures and to maintain their educational impetus. The total package would have won the approval of Patricia Green,

who wrote in BEE, November 1986, ('Selecting an Area for Environmental Studies'.).

'The first step is always to decide what may be wanted from the land outside the school building, and then to make sure that full use can be made of the proposed resource from its inception..'

(P Green, 1986, p4)

Developments at that school were in marked contrast to those of an R C Aided School in a similar location, which registered a nil return. The majority of responses showed that schools used their own environment regularly for biological activities, accounting for fifty three per cent of the total, with geographical fieldwork at thirty per cent, history fourteen per cent and bioethics three per cent. Within the biological fieldwork the principal concern centred on the study of botanical specimens, the management of seed plots and the planting of bulbs. Other biological field exercises frequently reported included bird studies, (seventeen per cent of biological activities); the collection and analysis of mini-beasts, (fourteen per cent); hedgerow analysis, including dating, (eleven per cent); pond studies, (eight per cent); and the creation and use of nature trails in the school grounds, (six per cent). Geographical fieldwork was dominated by weather studies which were reported as taking place in

forty two per cent of the respondents schools. Here, no doubt, those schools who reported a lack of gardens and playing fields found their limited environment equal to those of the more exotic. Similarly, the use of school grounds for measurement and mapping, (thirty two per cent), and orienteering (eighteen per cent) was not restricted by the structure of that environment. Traffic surveys (eight per cent) completed the list of geography-related field activities. With the exception of attempts at hedge-dating, environmental fieldwork pertaining to historical initiatives were limited to studies of the school's fabric, architecture and street furniture. Direct reference, within the questionnaire, to fieldwork associated with concern for the quality of the environment, bioethics, was only returned by three per cent of the schools who used litter and noise pollution surveys in their school environment.

Environmental fieldwork within the school premises and grounds showed only minimal seasonal variation between spring, (twenty one per cent usage); summer, (thirty four per cent); and autumn, (twenty three per cent); but dipped to fourteen per cent in winter when teachers reported that, 'lack of knowledge of their pupils' and 'the need to acquaint them with

field-work techniques, and equipment were the restricting factors', rather than inclement conditions. Whilst two schools reported spending no time in their school environment, over fifty per cent showed at least weekly use, often for brief periods of time, involving the collection of specimens or weather recording etc. It was impossible to accurately quantify time spent on fieldwork activities in this environment as the questionnaire responses presented too many variables which included such comments as, 'as much time as the activity requires', and 'it depends upon the children's interest'.

Measurement and weather equipment formed fifty six per cent of the equipment used within the school's environment. In the former, activities were related to the mathematics curriculum and the equipment included metre rules, measuring tapes, trundle wheels, spirit levels and ranging poles. Apart from thermometers much of the weather equipment; anemometers; rain gauges and barometers had been constructed by the children. A large number of respondents reported difficulty in long-term monitoring of the weather etc. due to damage of equipment by vandals. Sixteen per cent of the schools used Silva compasses for orienteering with the fourth year junior pupils. Microscopes and magnifying glasses were quoted as

the main pieces of biological equipment although seasonal variations e.g. 'an old oak tree is used to observe changes through the seasons', were monitored by five per cent of schools through the use of video or still cameras. Fifteen per cent of respondents reported borrowing sophisticated fieldwork equipment such as decibel meters, compasses, binocular microscopes from the Department of Educational Studies, Teesside Polytechnic.

5.1.2 (ii) Environmental Fieldwork in the Locality of the School

As would be expected, the greatest influences on the nature of environmental fieldwork in the immediate locality of the school were the characteristics of that locality. Greater attention to this facet of the results is included later during the more finely focused section of the analysis covering the influence of location, (rural, inner urban or outer urban), on the provision and form of environmental fieldwork. (Section C). Generally the locations listed reflect greater attention to subject integration than did school-based fieldwork. They are more closely related to half-termly patterns of operation, reveal peaks of seasonal activity often forming major parts of project

work, and their results are more frequently formally recorded. Fieldwork associated with the study of people and their homes, incorporating services, such as shops, libraries, roads and museums was most frequently reported in the questionnaires to form fifty seven per cent of the total. Such fieldwork operated in an interdisciplinary fashion principally involving geographical and historical concepts, skills and techniques with opportunities for bio-ethical considerations emanating from associated studies of conservation, noise abatement and litter surveys. Other fieldwork activities using man-made environments in proximity to the school included visits to local industries and the use of speakers in school from those industries. Here Cleveland's industrial hierarchy of I.C.I., British Steel (Redcar), the Hartlepool Nuclear Power Station, the Teesside and Hartlepool Port Authority were matched by visits to local small firms and businesses that shared their school's environment. Church and graveyard studies were popular local fieldwork sites, (eleven per cent of the total) and provided good opportunities for integrated study of geographical, historical and biological phenomena. Schools involved with computer-assisted learning used the man-made environment to generate statistics, of these the graveyard headed the list. Thirty six per cent

of the responses showed that schools were able to utilise natural environments within their vicinity. Water areas - rivers, streams, ponds and marshes formed fourteen per cent of this total, with beaches and dunes of the seashore a further seven per cent. By marked contrast to the mainly urban located schools rural schools, on Cleveland's peripheries, recorded fieldwork in wooded areas, (seven per cent of the overall total), fields, hedges and farms (six per cent). The schools reported spending more time working in their neighbourhood than they used within the school's own perimeters. However, apart from noting peaks of seasonal activity in the spring and summer terms and flexibility in time-tabling related to those seasonal variations, the time factor was impossible to quantify from the data presented.

Over sixty per cent of respondents repeated their lists of specialist equipment that they had presented for work on the school site, however, of these many stated the need for greater attention to safety precautions whilst working outside the school and therefore the greater need for good preparation and organisational factors. Consequently over sixty four per cent of respondents had purchased ordnance survey maps and plans and had used them with their pupils

both in the preparatory periods, and in the field. Almost forty per cent of schools used 'linking trails with well-documented centres of interest', some with 'environmental viewing stations', to provide an organisational basis for their local streetwork. Data recording and storage was more sophisticated than had been noted for work on the school premises. This is largely explained by similar statements incorporated in a number of questionnaire responses that 'whilst the school and its grounds are used by pupils from all age-bands, work in the locality is mainly provided for the upper junior age-range'.

The main means of recording fieldwork data was in the form of maps, charts, graphs and diagrams, (thirty one per cent of the records). Fifteen per cent of respondents provided evidence of data recorded in display format: art displays located in corridors, or as classroom friezes, display tables or mounted in the hall and related to school assemblies. A further fifteen per cent of schools produced video or 35 mm slide records of their fieldwork with ten per cent combining this with tape-recordings of interviews with local residents and representatives of service industries. Rubbings, sketching, creative writing, poems, 3D models and tick sheets jointly

formed twenty two per cent of the recording strategies. As previously noted one group of schools translated their fieldwork data into a computer-based retrieval system. (seven per cent).

5.1.2 (iii) Environmental Fieldwork in Locations
Necessitating the use of Transport

Eighty three of the eighty four completed questionnaires specified distant locations used by their schools for environmental fieldwork. Forty nine per cent of these locations lay inside Cleveland County, of which the principal venues were Kirkleatham and Preston Park Museums; Newham Grange Leisure Farm; Teesside Airport and the Teesmouth Field Centre. Nineteen per cent of the more distant fieldwork sites were located in County Durham, where Beamish Museum, Castle Eden Dene, Cow Green Reservoir/High and Low Forces, Teesdale, and the Washington Wild Fowl Centre were the main attractions. Northumberland provided the venues for a further seventeen per cent of field-visits, mainly to the Roman Wall and Farne Islands. Strangely, considering the wealth of the habitats, the abundant opportunities for a wide range of environmental field activities, and its close proximity to the southern borders of County Cleveland, the North

Yorks Moors was only used by seven per cent of the schools. The City of York with four per cent and the Peak District and North Wales, with two per cent each were the other locations. No school reported using foreign venues. (Visits to Austria and Switzerland were noted during the interview survey). Most schools visited more distant locations only once per year, during the 'school trip'. Educational visits involving practical fieldwork exercises were largely restricted to no more than twice per annum, although one quarter of the respondents indicated that field visits within Cleveland County were arranged 'as appropriate to the topic'. Eleven of the schools presenting questionnaires regularly participated in field courses of a week-end or weeks' duration at the Cleveland LEA's field centre at Carlton. Six others spent a weekend every year at either East Barnby near Whitby, or Danby Lodge, North York Moors, whilst another party used Rock Hall Y.H.A., near Alnwick, Northumberland as their weekend base for the environmental study of the Northumberland coast. Three quarters of the respondents claimed that travel costs inhibited their choice of field locations in terms of reducing distances, restricting the number of visits, and particularly in limiting periods of residence. Fifty five per cent of the schools had to hire

public transport whereas the other forty five per cent were more fortunate, either by owning their own mini-bus/sharing with the neighbouring comprehensive school, (ten and fifteen per cent respectively), or gaining the use of a Community Service mini-bus (twenty per cent). Other problems facing field excursions included: 'the size of mini-buses which precluded class visits', (most mini-buses having either fourteen or seventeen seats whilst class sizes, although varied, normally exceeded twenty four); 'the number and complexity of the forms required by the LEA authorising field visits'; 'dependence on parental help to preserve the prescribed pupil to adult ratio'; 'lack of wet-weather clothing'. By contrast thirty three per cent of schools reported no problems in recruiting parental help whilst others enlisted student assistance from Sixth form Colleges. One inner-urban social-priority school reflected the environmental studies post-holder's strong beliefs in the value of field work by providing sets of cagoules, boots, rucksacks, clipboards, polythene bags and two pairs of binoculars. Generally the equipment used in these locations paralleled the list presented for work in the school's immediate vicinity. The data recording and display techniques similarly showed little variation from the practices outlined for the school's locality.

5.1.2 (iv) The Selection of Environmental Fieldwork Sites and Activities

Ninety nine per cent of questionnaire returns demonstrated democratic decision making by class teachers or year group teachers over the choice of fieldwork locations. Only one response complained that 'there is no choice, we are directed by the headteacher'. Forty one per cent of the responses indicated that all environmental fieldwork, was the responsibility of the class teacher, as typified by the comment, 'wherever and whenever it takes place'. Within these returns, however, it was apparent that individual choice was still influenced by school or year-group constraints.

'The classteacher takes these decisions but they must relate to school guidelines'.

'Choice, whilst individual, is controlled by its association with the designated T.V. programme being followed by the class'.

'Fieldwork decisions are individual once they have been discussed at a staff meeting'.

'The selection of a fieldwork venue is left to the individual teacher, however, as the school is small we try to reduce transport costs by combining classes and studying the same area'.

Not all teachers welcomed the opportunity to take independent decisions, for example:

'There is a great tendency for individuals to plan their own fieldwork activities with no reference to other teachers, even those teaching the same year group. A school staff curriculum policy does not tend to happen'.

Fifty eight per cent of participants recorded that the choice of fieldwork activities and site selection were collective decisions. Most showed that year-group teams were not only responsible for the planning and execution of fieldwork, but were also charged with recording the results 'to avoid repetition', and with the 'presentation of these results, in display form, for school dissemination'. Within the 'collective' responses were a number of 'hybrids', (twenty two per cent of the total). These incorporated:

'Fieldwork decisions are dependent upon the organisation of the school year and especially upon the people who help us e.g. police week'.

'Decisions are independent, although teachers cooperate on particular topics'.

'Infant teachers act independently - juniors collectively'.

'Fieldwork activities are decided by individual teachers but they are built into a school-planned scheme for the progressive development of skills'.

'Fieldwork for projects is planned collectively, but within the project individual teachers select activities appropriate to the needs of their pupils'.

5.1.2 (v) Environmental Fieldwork Follow-Up
Sessions

Seventy five per cent of respondents said that they could not quantify the amount of time spent in 'follow-up' sessions after fieldwork. The remainder, whilst still supporting flexible operation, roughly agreed with Perrot's ratio of 'one field experience generating nine follow-up sessions'. (E Perrot, 1975). The question produced such responses as,

'As much time as necessary without it becoming stale'.

'Varies with interest - often half a term's work is ordered around a successful field visit'.

'Can range between none at all to a term's work'.

'Depends upon the age of the children and their interest'.

'There is no time limit - pupils may use library periods and general study time'.

Where quantification of follow-up time was attempted differentiation between locations was used to crudely present the most common breakdown:

School-based work - 2 hours x 2 weeks;

Immediate environment - 2½ hours x 4 weeks;

Distant fieldwork - 2/3 hours x half or full term.

5.1.3 Accommodation for Environmental Education

5.1.3 (i) Specialist rooms

There was great variation both in the quality and nature of accommodation for environmental work provided by the different schools. This general analysis focuses upon statements within the questionnaire that reveal positive and negative influences upon environmental fieldwork at the disregard of more general comments on 'project' or 'topic' accommodation, provisions or demands. Thirty four per cent of schools indicated that each classroom was self-sufficient, indeed most of these restricted their response to the word 'classroom'. However, the remainder presented evidence of fieldwork preparation, follow-up analysis and subsequent display of results extending into other areas of the school. Here open-plan schools, where modern design had anticipated ease of access by the provision of patio doors opening onto quadrangles and gardens, scored more highly than their traditional school counterparts. The open-plan schools permitted fluid movement between bases housing specialist environmental equipment and recording devices. Ten per cent of the schools had created 'wet areas' for the analysis of fresh-water or marine specimens. Seven per cent had established an

'environmental resource area', with a further three per cent having a central storage area for shared environmental equipment. Three schools reported having a spare classroom where fieldwork follow-up was completed by small groups of pupils. One school even boasted a sound-proof room where field-generated tape-recordings may be analysed. Most schools used corridors, alcoves and the assembly hall for the display of their fieldwork results. As presented above, the age of the school was reflected in design changes which all too frequently related to variations in quality of facilities. Generally the schools constructed in and after the 1960's catered better for environmental fieldwork.

'The school is a modern building with a central hall, seven classrooms, a resources room and a library. With the exception of the hall the rooms have sinks and running water. The furniture consists of tables, rather than desks, enabling large activity areas to be created for the construction of plans etc. Some formica-topped tables are provided facilitating activities with rocks, plants etc'.

Each classroom is open with a large 'wet area' which can be used for experimental work. Classrooms include a library, sink, plus a patio and door leading to a wild garden and bird study area'.

5.1.3 (ii) The Nature of the School Grounds and Yard

The results of the questionnaire, plus a perusal of the schools' documents, would suggest that

Cleveland's primary schools are well endowed with playing fields, quadrangles, yards and gardens which provide a wide and interesting range of environmental habitats, although some schools reported,

'The school is 96 years old. There are two small yards enclosed by walls that are eight feet high. We do not have a playing field'.

'A bare field and a few shrubs. Our environment is not an interesting one, teachers have to work hard to inspire interest'.

'We have a playground but it is north facing it is little used for environmental work. The whole school area tends to be bland except for the caretaker's house which is surrounded by a hawthorn hedge and some shrubs'.

All of the schools had yards, fifty seven per cent had more than one, of which thirty two per cent were described as being large. Ninety seven per cent reported having playing fields, which only two schools described as being quite small. Just over half of the respondents listed areas within their premises used for field-based activities and several appended plans of these to the questionnaire document. The principal habitats included flower, wild and butterfly gardens; grassy areas; wild-bird study areas; walls and ponds. Falling school rolls and the subsequent amalgamation of the Junior and Infant schools were claimed by one headteacher to have

benefitted the school's environmental opportunities,

'the school now has two playing fields, three playgrounds, inner courtyards, large grassed areas, two flower beds within a very large site where children can be actively engaged in a wide range of fieldwork activities without causing disturbance to others'.

5.1.3 (iii) Influence of the School and its Locality upon the Development of Environmental Work

Most respondents were sufficiently competent as environmental practitioners to recognise that every environment offers some opportunity for realistic fieldwork. Their responses consequently emphasized relative merits and constraints that the school and its locality placed on a range of fieldwork practices in contrasting mini-habitats and facets of the environmental curriculum. Fifty six per cent reported that their school environment provided very good opportunities for environmental fieldwork. A further fourteen per cent described their school and its grounds as being good for fieldwork. Only three per cent indicated that their school setting was very poor for field-based work. Of the latter the main constraints were listed as, 'the field becomes water-logged'; 'the thematic approach does not lend itself to

fieldwork'; 'the school's tight time-tabling schedule inhibits "proper" fieldwork'; 'absenteeism amongst staff hinders team-teaching in the field'. The human element rather than the physical properties of the site were mainly quoted as the constraining factors i.e.

'Our school environment provides many opportunities for fieldwork. The constraints relate to the levels of staff expertise and enthusiasm'.

'I attended the 25th Annual Conference, N.A.E.E., at Losehill Hall, Oct.'85; "The Local Area, Used or underused?" I gained many ideas for using the school and its surrounds from international teachers and advisers. (Practical as well as theoretical), My headteacher does not want to know about them'.

Opportunities for environmental fieldwork stimulated by the school's locality were similarly assessed. Sixty three per cent of participants described their school surrounds as possessing very good fieldwork environments. A further fourteen per cent considered them good, whilst only three per cent felt they were very poor. One report from an inner-urban area primary school stated,

'the immediate surrounds need to be broken through by a mini-bus journey. They are uniform, drab and vandalised'.

5.1.4 School Based Resources for Environmental Fieldwork

5.1.4 (i) Fieldwork Equipment and Learning Resources

Ninety three per cent of the questionnaire responses showed that schools possessed a range of basic fieldwork equipment. The main resources recorded were in the following proportions: maps and plans 28%; A/V (strips and slides) 25%; measuring equipment 20%; science equipment (inclusive of weather apparatus) 17%. Documentary support, in the form of books, magazines, pictures, charts, trail guides and work packs were also well represented. The majority of the specialist equipment and documentary sources were located centrally i.e. resource centre, separate store or library, A/V room. The smaller schools with low budgets had been unable to maintain their resources as well as the larger units and one deputy head rued,

'Because we are small we do not have enough money to continue the policy we began six years ago. We have so little everything is precious'.

Poor management of resources was highlighted, particularly by those reporting limited supplies,

'we don't have many (resources), and all that we do have are not known to the staff as a whole'.

5.1.4 (ii) External Agencies Used in Support of Environmental Work

The planning and fieldwork follow-up stages were described by the respondents as the times when support was often sought from external agencies. Forty three of the schools used the museum service on a regular basis. Rocks, fossils, minerals, artefacts and the like were borrowed in order to stimulate interest in areas or themes chosen for subsequent field-based exercises. Thirty eight of the schools drew heavily upon the school's library service, 'especially to help in the identification of environmental phenomena'. The schools also made considerable use of human resources. Apart from the regularly planned visits by the police and fire services the respondents recorded a lengthy list of visiting speakers recruited in conjunction with field related aspects of topic work. Major industrial concerns provided a large number of the speakers but of particular support to fieldwork practices had been visits by the C.L.E.A.R. and T.U.M.P.A.C. staff members; Cleveland Conservation Volunteers; R.S.P.B., Keep Britain Tidy representatives, Castle Eden Walkway Wardens, Seal Sands Bird Sanctuary Warden, Coatham Marsh Warden and Teesside Polytechnic Environmental Education Lecturers.

5.1.5 Records and Assessments made of Pupil Attainment in Field Related Activities

'Very little recording of individual progress outside the fields of language and mathematical development took place in the sample schools'.

(J Hicks, 1987, p15)

The results of the questionnaire survey was much in agreement with the findings of Judith Hicks, given above. Typical of the responses were,

'A record is kept of the themes undertaken by the pupils throughout their school life, but assessment in other than general terms is not recorded'.

'A brief written record is made of field activities undertaken to avoid repetition'.

Generally schools tended to record the assessment of environmental work as part of 'topic' or 'project' work, although fifty six per cent of respondents indicated that they kept a separate record for each of the curricular areas incorporated within that work, including environmental studies or their traditional subject components; (geography; history and science). Sadly thirty per cent kept no records of environmental work and seven per cent only few. Within this limited framework the assessment and recording of environmental fieldwork fared poorly.

'We have looked at this problem and have ruled out skill checklists as being too time consuming'.

'There is an informal assessment of field related activities. Spontaneous observation takes place with rewards of house points for achievements'.

Defective school management procedures are again blamed for lack of record keeping.

'Because we have no unified policy for environmental studies detailed records for fieldwork are not kept'.

Only eleven per cent of respondents kept detailed records housing assessment of field-based work. Of these the scope and quality varied greatly from encompassing details of practices and individual performances to a brief, general note on the chronology of events.

'Teachers make assessments based on the results of the Richmond Achievement tests on study skills. Scientific concepts are assessed through the use of the Sussex Science Horizons scheme'.

'Each teacher or group is responsible for preparing a plan of aims and objectives for field activities. A brief written record is made of completed fieldwork'.

Over fifty per cent of the responses from environmental studies post-holders expressed dissatisfaction with their record keeping and reported that 'this problem is currently under review'.

5.1.6 Longer Term Pattern of Environmental Fieldwork

Limited response was received from the questionnaire's request to provide sequential lists of fieldwork based on the 'experience of the pupils during their junior phase'. Twenty seven per cent of this section of the questionnaires was left blank, eleven per cent commented, but provided no programme, whilst nine per cent presented reasons for their inability to include a programme, one of which read, 'not impossible - but embarrassing', whilst others mainly laid blame on teachers' sanctions during recent years for the lack of opportunity to carry out fieldwork. From the forty six schools providing positive responses an overall pattern emerged showing that twenty eight of these provided each year of the primary phase pupils with fieldwork experiences in the school's environment, its locality and of more distant environments. The other eighteen schools limited fieldwork experiences for the first two years of the junior phase to studies in school and neighbourhood habitats and only extended into more distant locations for the older pupils.

5.1.7. No information of additional substance was provided,

5.2 SECTION B: AN EXAMINATION OF THE INTERVIEW AND PARTICIPANT OBSERVATION SURVEYS.

Thirty two headteachers, or their delegates, normally the teacher with responsibility for environmental studies, were interviewed from 21 primary, 7 junior and 4 infant schools in County Cleveland. The thirty two schools, which housed a total of 7,934 pupils, had been selected by the use of a purposeful sampling strategy described in chapter 4. Participant observation studies operated with teachers and pupils drawn from eight of the schools used in the interview survey, with a total pupil population of 2,049.

The replies of those interviewed were initially examined in order to identify patterns and to produce generalised statements. Subsequently the findings from the interview survey and participant observation exercises are combined in Section C with those of the questionnaire, in order to identify particular significances.

(See Appendix F).

The first part of the interview, 'the nature and organisation of environmental fieldwork', was designed as a bridging survey, providing a link with the questionnaire and, as it demonstrates overlap, the promotion of methodological triangulation. Similarly participant

observation, with its progressive focusing upon environmental fieldwork, contributes to methodological triangulation and to that end its results are combined in this section with those of the interview survey.

5.2.1 Bridging Survey: The Nature and Organisation of Environmental Fieldwork

Very little variation was shown in the responses given in this sub-section of the interview, to that similarly explored by the questionnaire. At the introductory stage of the interview participants provided details concerning their formal training in Environmental Education. Just over half of those interviewed, (53 per cent), possessed an initial training qualification in one or more of the environmental 'core subjects', (geography, history or biology). Twelve teachers possessed a certificate qualification which included studies of a core subject at 'mains level', with one of these being environmental science. Five held Bachelor of Education degrees of which three had included environmental studies as 'minor', professional courses, whilst two had environmental science courses throughout the four years of a BEd (Primary route) degree. The remainder of those interviewed, (fifteen), had no initial environmental qualification although all

indicated some exposure to environmental teaching as part of their professional courses. The subject qualifications of these teachers were chiefly in art, craft-design and mathematics. Eighty four per cent of the participants had engaged in, or were currently pursuing, part-time, day/evening in-service courses which included the word environmental in its title. Nineteen teachers of this group already possessed either a one-year part-time certificate qualification in environmental studies or a two year part-time diploma in Environmental Education. One of the nineteen had a MA in Education for which the dissertation had focused upon Environmental Education; a Certificate in Primary Science; a Certificate in Primary Environmental Studies; an Advanced Diploma in Environmental Education; the Historical Association's Advanced Certificate in the Teaching of History and was currently engaged in a school-based action research culmination study for the Historical Association's Advanced Diploma in the Teaching of History. The effectiveness of environmental in-service courses is explored later in Section C.

Analysis of interview and participant observation responses showed that environmental teaching in the thirty two schools principally related to

thematic studies with only twenty eight per cent of respondents presenting this work under traditional subject headings. One respondent quoted Lines and Bolwell, the I.U.C.N., Tbilisi and the Cleveland Curriculum Review document in support of the inter disciplinary nature of her school's environmental policy. Regardless of time-tabling, teaching titles and strategies, all interviewed strongly supported the use of fieldwork in environmental studies with one teacher expressing the opinion,

'fieldwork is the cornerstone of Environmental Education'.

As with the questionnaire responses, difficulty was expressed in quantifying outdoor environmental experiences. Generally the schools revealed a pattern of frequent use of the school and its immediate surrounds by all age groups with less frequent visitation to more distant localities. Here again the restrictions caused by teacher's sanctions within recent years was highlighted. Autumn and spring emerged as the most popular seasons for environmental fieldwork, with the majority of respondents declaring that at that time their pupils worked frequently in the school grounds and the immediate school neighbourhood. Thirty of the respondents reported locating the 'school trip', albeit with at least an environmental 'flavour', in the

summer term. Only thirty one per cent of the teachers made even limited use of fieldwork during the winter months giving 'inclement conditions; lack of botanical species; curricular competition and preparation for Christmas festivities' as the main deterrents. Visits to, and use of County field or urban studies centres, and use of these organisations' guest speakers at the schools proved to be very popular with over eighty per cent of the participants' schools. Additionally, sixty two per cent of the respondents had similarly used the staff, facilities or resources of either TUMPAC or the CLEAR centre. Whilst the residential facilities and environmental potentials of Carlton were frequently described as,

'the focal point of the school's environmental programme',

Many complimented the staff of TUMPAC and CLEAR for the trails and work packs they had devised which,

'emphasized the multiplicity of environmental practices that the streetwork of our own locality provides'.

Many of the environmental programmes, described by the teachers, took into account the location of the residential course in the late spring or summer term. A general pattern that emerged showed brief visits during the autumn term to the

school grounds and the neighbourhood focusing upon urban trails; fabric studies; relict features; shopping and service industries. During this period pupils were introduced to a range of equipment, reference materials and recording techniques similar to the list generated by the questionnaire responses. Preparation for spring and summer visits/residential courses consolidated the resource list, provided a contrast in knowledge, and spawned a new range of concepts and attitudes. Teachers expressed the opinion,

'the urban - rural divide provides seasonal balance to our environmental programme'.

5.2.2 The Aims and Objectives of Environmental fieldwork

All of the interviewees considered that environmental fieldwork and their follow-up activities contributed greatly to the development of scientific skills. The main variation to their responses, apart from their own knowledge of this area, related to the phase of primary education with which they were concerned. This point is examined in depth in Section C, but briefly here it may be noted that the teachers of infants and lower junior pupils accepted the words 'observing', 'selecting' and 'using tools

and equipment' from the list of prompts as being the most pertinent. By contrast the teachers of upper primary-age pupils chose 'observing', 'investigating', 'experimenting', using tools and equipment' as being of most significance. Surprisingly none of the respondents considered that they consciously involved their children in hypothesis testing, although in conversation the use of the term investigation often appeared to incorporate that strategy. A further surprise was that whilst forty seven per cent revealed regular use of sophisticated recording devices, such as tape recorders and cameras, very few of the teachers believed that the pupils' use and knowledge of these resources led to the development of scientific skills.

Participants expressed contrasting opinions over the use of environmental fieldwork as a stimulus for linguistic and mathematical development. The seventy two per cent of teachers who had earlier described their environmental studies as thematic, and who had valued environmental fieldwork in projects, largely believed that such work should extend and refine their pupils vocabulary and develop language skills. Three of the group expressed views that environmental fieldwork would produce a 'spin-off' effect on language but this was regarded merely as

'supportive of the language curriculum and not documented in lesson notes as one of the roles of environmental studies'.

Those presenting environmental teaching under traditional subject designations similarly perceived language development as being primarily pursued through, 'English lessons'. There was some acceptance of the view that writing of fieldwork reports involved the extension of vocabulary and improvement of grammar, but most argued that these were minor considerations which,

'if over-stressed may be damaging to the very fieldwork procedures themselves as they would divert attention from the process. (fieldwork), to the product, (the report)'

Use of fieldwork to encourage self-expression and improve critical faculties received almost unanimous support with most teachers using discussion as the initial mode of fieldwork follow-up. This was very apparent during participant observation lessons. Only two teachers said that they used fieldwork to develop mathematical concepts and number skills, although eight others, in general conversation, reported using orienteering, statistical representation and cartography which involved mathematical skills. Amazingly measurement, a basic recording device in environmental fieldwork, received

little mention during the interview survey. Perhaps it appeared too obvious.

Ninety four per cent of responses to the question exploring the use of collection and recording of fieldwork in the communication of findings and ideas, were very positive. Here infant teachers were as enthusiastic as their junior colleagues about the value of presenting written and diagrammatic results, but even more so about the effect on children's learning and acquisition of skills of pictorial representation and modelling. Most used these media to disseminate the results of fieldwork to pupils of the school in general.

Field-based study of social and political aspects of the environment was described by most participants as low priority, even though sixty nine per cent reported visiting local shops or industries as part of their prescribed environmental programme. Many believed that this facet of environmental study was better approached through the use of slide sequences, environmental games or simulation techniques, such as Coca Cola U.K's, 'Man in his environment'. Others believed that drama was a better medium in which to present political and social concerns. Here role-play exercises were popular.

Descriptions of Environmental Education resources frequently featured in the consideration of the aesthetic and spiritual roles of fieldwork. Many schools had explored strategies, promoting aesthetic awareness, that had appeared in BEE, (Bulletin of Environmental Education); the works of Eileen Adams, (Art in the built environment); or had purchased/borrowed aesthetically focused filmstrips e.g. the Focal Point product 'Colour in the Built Environment', by Tom Porter. Pleasingly, the teacher's comments presented a balance between the aesthetic influences of urban and rural habitats, both of which had generated poetry and music in some schools. Several reported the value of fieldwork in the aesthetic, and to a lesser extent the spiritual, responses subsequently emerging in creative writing, where,

'the hard-nosed need to bow to the scientific demands for cryptic reporting and statistical analysis are remote'.

A number of teachers during participant observation visits proudly presented pictorial, essay and poetry evidence of the aesthetic impact of fieldwork.

5.2.3 Cleveland Curriculum Guidelines for the role of Environmental Fieldwork

The headteachers and deputy headteachers, who were interviewed, had all read the Cleveland LEA's Curriculum Review issued in 1979. Most admitted to having only a hazy recollection of the content of the environmental section of the document, and to their reliance upon the environmental studies post-holder for its implementation. However less than half of the post-holders interviewed possessed a copy of the document, and only a handful of those who did had incorporated any of its advice into the school's documented environmental policy. Respondents generally had taken little heed of the guidelines in the design and execution of environmental fieldwork and where they had it had been restricted to the advice from the skills section. The knowledge section was condemned by more than half of the teachers as having only presented outline advice, although three of the teachers interviewed believed that these outlines gave them confidence 'to explore such material, as it had been accepted as pertinent by the LEA'. One teacher rebuked the document for 'its over-dependence on Masterton's Environmental Studies: a Concentric Approach', (1969). Another interviewee stated that he did not use the

knowledge section of the C.C.C.R. document as it was 'inferior to the guidance offered in Lines and Bolwell's, 'Teaching Environmental Studies in the Primary and Middle Schools'. (1971). Other commercially produced works were also quoted, but in fairness to the C.C.C.R. their publication dates came after 1979. Most popular were Henry Pluckrose's, 'Look Around Outside', (1984); Joan Blyth's, 'History in Primary Schools : A Practical Approach for Teachers of 5- to 11-year-old Children'. (1982); and 'Environmental Education' : A Review, by the D.E.S. (1981).

At this stage during the interview the teachers had been shown a copy of 'the roles for environmental fieldwork', specified by the C.C.C.R., and asked which of these they would choose as being most closely related to the purposes for which they would employ fieldwork practices with their pupils. (The list is reproduced in appendix C, sub-section C3). Over three quarters of the responses specified role 3f: 'to develop basic tool skills and to stimulate through research, experimentation and observation', as being the closest to their own policy. Just over half of the teachers placed 3a: 'to develop the ability to think and enquire purposefully' and 3b: 'to encourage in the child critical faculties and disciplined thinking', in

joint second place. 3c: 'to utilise the child's natural curiosity and develop a desire for further knowledge', was well supported by the teacher's of early years pupils, and was placed fourth. Surprisingly, after the support given by the respondents earlier to the communications role of fieldwork, 3e was placed fifth. Of the remaining two roles, 3d came a lowly sixth whilst 3g: 'to develop an understanding of the interrelationship of man, his culture and biophysical surroundings' received very little support (six per cent). As with findings elsewhere the teachers reflected a desire to sponsor the practical in advance, or even to the exclusion, of the theoretical.

5.2.4 The Bioethical Role of Environmental Fieldwork

During chapter one of this thesis attention was drawn to the need to include the bioethical role of environmental work in any definition to carry the title of Environmental Education. The teachers' responses revealed a considerable depth of understanding for the need to establish a 'global ethic' and to support conservation practices. Ninety per cent indicated that their fieldwork involved the promotion of considerate behaviour and over half of these teachers were aware of the 'Hertfordshire Teacher's guidelines'

in this context. Studies of noise pollution and litter surveys, in the school and its immediate locality, were quoted by a large proportion of respondents as regular features of their work. Many streetwork exercises and urban trails focused upon conservation strategies and problems in the school's locality. Further afield, more than one third of the schools had carried out water pollution surveys. A large proportion of respondents said that they emphasized careful sampling techniques in the gathering of environmental phenomena; the return of living organisms to their natural habitat after examination; observation as opposed to examination as their principal contributions to teaching about concern for environmental quality. Fifty per cent revealed that they consciously promoted codes of conduct in their teaching.

The majority of participants did not use field-based locations to foster in children both a sympathy and an empathy with people in different places and times. In this context the participants had made greater use of role-play exercises, film slides, cine and the schools T.V. broadcasts. The twenty five per cent who did make a positive response to this question had used statistics largely gathered from graveyard surveys to foster sympathy and empathy with

people of different times. These surveys had generated information about infant mortality; longevity; epidemics; waves of popularity of Christian names; size of family; surname analysis; etc. Two such surveys were conducted by classes involved in the participant observation fieldwork and subsequent follow-up sessions. The results of these surveys, which were translated into computer-assisted learning exercises, facilitated the pupils' understanding of past conditions and evoked sympathetic statements of concern for people living in those times. Also during a participant observation exercise empathy with agricultural workers was developed by one teacher who used field study of ridge and furrow patterns and hedge-dating procedures alongside Birt and Nichol's, 'Enclosure' simulation. Perhaps the most moving experience, gained during the participant observation phase, occurred in an inner-urban area school during their follow-up session to a polluted pond study. Here the class first read, then acted, scenes from Dr Zeuss's story of the Lorax. The quaint-sounding creatures in the story, who had suffered from various forms of pollution caused by man's greedy economic activities, epitomised many of our current environmental problems.

5.2.5 Environmental Fieldwork: Constraints and Benefits

5.2.5 (i) Constraints

In both the interview survey and participant observation sessions teachers expressed frustration at not being able to use environmental fieldwork as frequently, or as effectively, as they would have wished. Whilst the majority of these teachers used fieldwork as part of project work, seventy per cent, nevertheless, complained that the time-table was not sufficiently flexible, and in particular did not allow frequent visiting to specific habitats in order to monitor environmental change. Poor staffing levels were regarded as a further constraint necessitating the use of parent supervisors which in itself created organisational problems over availability, in order to satisfy safety regulations during field visits. Sixty per cent of the school representatives stated that lack of finance, and to a lesser extent resources, curtailed fieldwork experiences particularly to the more distant environments. Here the schools socio-economic hinterlands bore a direct relationship to self-financing arrangements. Ten per cent of the respondents reported poor professional relationships amongst their colleagues as a

problem facing fieldwork, particularly the establishment of integrated field studies through effective team-teaching. One teacher defended a fragmented approach to environmental fieldwork believing that

'children learn better and retain information for longer when they study their environment in a multi-disciplinary fashion'.

In honesty it must be noted that the same teacher reported lack of cooperation amongst the staff as a problem encountered in using environmental fieldwork. Fifty per cent of the interviewees, and over ninety per cent of the teachers visited in participant observation situations, reported receiving encouragement to engage in fieldwork from their headteachers and the environmental studies post-holders. Twenty per cent noted a positive attitude of support from the LEA's adviser.

5.2.5 (ii) Benefits

The majority of interviewees declared that the benefits gained from participating in environmental fieldwork were many, and that these had been properly explored in the earlier sections of the interview. The list of quotations situated below typify the remainder of

the comments profered as benefits derived from fieldwork

- 'Increased levels of child motivation';
- 'Hands-on experience in situ';
- 'Promotion of the relevance of learning';
- 'Natural integration of curricular areas';
- 'Stimulation and motivation of other areas of the curriculum';
- 'Introduction of experiences not dependent upon previous home experience - therefore common to all';
- 'Encouragement of the use of all senses';
- 'Increased self-reliance and confidence'.

5.3 SECTION C : SUMMARY OF THE CASE-STUDY FIELDWORK

The principal variants within the findings of the four stages of data collection, the evoking of documents, questionnaire, interview schedule and participant observation, are summarised below using the criteria:

- (i) school location;
- (ii) characteristics of the school : size, age, accommodation and organisation;
- (iii) school phase;
- (iv) influence of regional organisations;
- (v) school management and teachers' professional profiles.

5.3.1 School Location

To facilitate the interpretation of the case-study's fieldwork, schools were grouped according to their geographical location i.e. rural, outer-urban or inner-urban. Dimensional sampling, described in chapter four, (4.3.4 (iii)), had ensured that a selection of schools from each of these areas was adequately represented. The interview survey, with its use of teachers from thirty two schools, further focused upon school location and socio-economic controls, whilst the selection of participant observation venues had been influenced by the need to represent the rural-urban divide, (chapter 4, 4.3.5 (ii)) and (photographic transect commencing overpage).

Map I, located as appendix D, shows the division of Cleveland County into ten educational catchment areas. (Source, Cleveland Education Committee's, 'List of Primary Schools for 1985/86'). No significant pattern of environmental fieldwork practices emerged in the crude comparison between one sub-region and another, although even at this macro level the obviously broad-based contrast between, e.g. coastal location, central business district, Cleveland escarpment etc. were influential.

Photographic Transect : Semi-Rural Outskirts to Inner-
Urban Renewal

Section A: Semi-Rural Outskirts.

Plate I Eggescliffe Village



Plate II Eggescliffe C E Primary School



Cleveland County generally is a densely populated conurbation with the heaviest concentrations focused upon the towns of Billingham, Hartlepool, Middlesbrough, Stockton-on-Tees and Thornaby. (See map I). Each of the towns demonstrate a fairly normal urban morphological pattern and so provide a range of socio-economic contrasts as a backdrop to the fieldwork schools. Rural schools are included in this range, being mainly located in sub-regions D and J, and to a lesser extent A. (See map I).

Geographical location would appear to significantly influence subject content in environmental studies and its related fieldwork. Rural schools, operating as an integral part of their community, concentrated fieldwork activities upon the extant and relict features of their village historico - geographical fabric and landscape, and upon all year round studies of biological and botanical phenomena. There was little evidence of these schools participating in urban streetwork. By contrast the majority of inner-urban schools focused their attention upon fabric surveys and urban trails. These schools used their own buildings and grounds for environmental fieldwork, particularly botanical, much more than had rural schools. Safety, especially with younger children, was quoted by

Plate III Layfield Primary School Yarm :
 'Green' Environment



Plate IV The Links Primary School,
 Eaglescliffe



the inner-urban area schools in defense of this policy. The schools located within the fringes of the urban zones, designated outer-urban in this study, benefitted from their hybrid situation, having ease of access to both rural fieldwork and urban streetwork, and many had designed trails to incorporate these contrasts. The programmes of the outer-urban schools generally revealed a better blend of subject material drawn from the environmental 'core' subjects. Resources for environmental fieldwork were evenly balanced between the schools, reflecting increased financial support from the LEA for the Social Priority Area schools of the inner-urban area, and the strength of parental support elsewhere. On average, although usually small, the rural schools were generally best, and the R C and C of E endowed schools of the inner-urban area poorest, resourced for fieldwork. Geographical location had no significant influence on the organisation of environmental studies into thematic or separate subject practices, but it appeared to affect the occurrence of fieldwork. Rural schools were actively engaged in work within their village area throughout the year with a seasonal peak in the summer term which incorporated the educational visit to a distant environment. In contrast the inner-urban area schools presented

Section B : Outer-Urban Area

Plate V Newham Bridge Primary School



Plate VI Newham Bridge Primary School Locality



a pattern of limited involvement in fieldwork practices during the commencement of the academic year, cessation of these activities from roughly October to April, then a spate of field-related work culminating in the 'school-trip'. The exceptions to this pattern were those inner-urban schools who had developed their own school grounds and gardens. Here the fieldwork pattern was not dissimilar to that of rural schools. Outer urban fieldwork practices benefitted from location in the fragmented green belt. Proximity to Cleveland's large, and numerous, parks and recreational areas allowed these schools to practice environmental fieldwork related to seasonal change. The outer-urban schools had also been more generously endowed with land than those more centrally located. Their rolling playing fields, well-stocked gardens and pleasant open-aspects were described as being conducive to all year round activity.

Locational controls appeared to influence the roles of environmental fieldwork little. Rural schools, with their pleasant scenery creating an enhanced aesthetic interest, and their affiliation to village churches producing stronger spiritual connotations, contrasted with the aim to promote bioethics in the graffiti-ridden, badly vandalised, decaying inner-urban

Section C : Inner-Urban Area

Plate VII Marton Grove Primary School



Plate VIII Marton Grove Primary School Locality



area schools. Yet again the children of the mainly middle-class residents in the outer urban area benefitted by exposure to the best and worst of both environments.

5.3.2 Characteristics of the School: Size, Age, Accommodation and Organisation

For the purpose of this summary Cleveland's primary-phase schools were sub-divided into four groups according to number on the school roll i.e.:

- small - less than 100 pupils;
- medium - 100 to 299 pupils;
- large - 300 to 399 pupils;
- very large - over 400 pupils.

Dimensional sampling had recognised these divides in the organisation and administration of the four phases of the case-study fieldwork.

The size of the school alone had little influence on the nature or role of environmental fieldwork that it practiced. However, size did create spin-off circumstances that influenced these practices. All, save two, of the 'small' category were either endowed R C or C of E schools, or else lay in Cleveland's rural peripheries, (the latter have been considered above). A number of the small church schools

Section D : Decaying Inner-Urban Area

St Hilda's C E Controlled Primary and St Mary's
Cathedral R C Aided Primary School Environment

Plate IX



Plate X



revealed poor resource levels for environmental work and regarded Environmental Education as low priority. In consequence, the incidence of fieldwork with these schools was the lowest recorded in the survey. The influence of informed management in other small schools produced variance with this finding. In some instances the small numbers allowed the economic use of transport for the whole school to study a single area, albeit at their respective stages of readiness. Size of school had some influence on the provision of resources for fieldwork due to the application of capitation allowances in proportion to pupil numbers. The variation was greater than first appearances suggested, as once the resource was purchased careful management and positive time-tabling enabled distribution to all pupils. Pupils in the larger schools were therefore shown to have been more frequently exposed to a wider range of fieldwork practices involving use of a greater range, or more sophisticated level of apparatus, than had pupils in the smaller urban schools. Perhaps the main influence the size of school roll exercised upon Environmental Education was organisational, i.e. the larger schools had more members of staff and in consequence a greater opportunity to encompass a spread of subject expertise. Furthermore, the larger schools could offer financial reward, in

Section E

Inner-Urban Area Renewal

Plate XI



Plate XII



the form of scale posts, for leadership of curricular areas. The majority of the larger units had environmental studies post-of-responsibility holders. Most of the medium sized schools also had teachers responsible for organising environmental work, but often without the provision of a scale post. The small schools not only lacked the spur of financial reward but often, due to low staff numbers, were deficient in environmental expertise. Another problem facing the small and medium sized schools had been caused by falling rolls, which had necessitated redeployment of teachers, often resulting in the loss of environmental expertise.

The age, accommodation and organisation of the schools included in the survey are interrelated in their impact upon fieldwork. Many of the older schools, some of which dated from the last century, have been subject to piecemeal improvements, extension and modification. The improvements, coupled to falling rolls which have reduced the pressure on accommodation, have allowed the use of some vacant classrooms as specialist areas, often designated resource rooms housing materials and equipment, or used as activity rooms, for practical environmental study. Many of the resource rooms were used to display examples of pupil's fieldwork which

allowed for work of quality to be seen by the schools as a whole, and also permitted staff to observe and compare the nature of work produced by various classes. A number of the older schools lacking gardens or playing fields nevertheless engaged in fieldwork within their perimeters reminiscent of Nancy Quayle's, 'Concrete Yard Gardening'. Most of the more recently constructed schools located in the outer-urban area are of open-plan arrangement. Fieldwork benefitted from this form of organisation which had taken into account: ease of access to the school grounds; the flexibility of teaching areas which promoted good practice in group and individual follow-up activities; the interrelationship of resource, practical and library provisions; the location of 'wet' and experimental areas. Such organisation had generated a greater use of team-teaching in environmental work than was displayed by the more traditionally structured schools.

5.3.3 School Phase

Cleveland County primary-phase schools fall into three categories:

- infant - 4+ to -7 years;
- junior - 7+ to -11 years;
- primary - 4+ to -11 years.

Dimensional sampling took these divides into consideration throughout the four stages of fieldwork. Information was gathered, or sought, from eighteen infant schools, (3,751 pupils), twenty one junior schools, (5,332 pupils), and forty five primary schools, (11,885 pupils). Details of the schools are given in appendix E.

Current County policy, and falling school rolls, has seen the amalgamation of most infant and junior schools, that share their site, within recent years. The majority of the remaining infant and junior schools are situated in the social priority areas where the size of school roll is still of sufficient size to warrant separate accommodation. This study therefore accepts that comments relating to school phase are bound to have been affected by socio-economic influences.

Infant schools showed a high level of involvement in environmental matters and made frequent use of the school environment for fieldwork. Their teachers subscribed to a 'here and near' fieldwork philosophy, and principally participated in observational activities related to the study of flora and fauna within the school premises. Adequate attention was paid to skills development, particularly language, and the use

of fieldwork experiences to promote thought, utilise curiosity, and develop a desire for further knowledge. Pictorial representation and modelling formed the main records of this work.

Junior schools turned out to be particularly dull places for environmental fieldwork. Programmes were too frequently based on content, with topics being decided by seasonal phenomena or television programmes selected at random. A great deal of the work drew heavily on secondary sources, with copying from books, of large sections of geographical or historical content, being actively encouraged. Fieldwork was sporadic with only the annual visit being properly introduced into the programme of work. There was very little evidence of beneficial liaison between the neighbouring infant and junior schools and therefore no continuity in the provision for Environmental Education, nor care in the avoidance of repetition in the use of habitats in the school's neighbourhood. A deputy head of one junior school proved to be the exception to this rule involving pupils from the infant school in her chequerboard garden, and in keeping plants and animals in school.

Primary schools revealed variations in their approaches to Environmental Education and to the

value they placed upon fieldwork, but generally this work was more progressively structured, and the concepts, attitudes skills and knowledge more systematically related to the needs of the child. The majority of these schools had appointed a teacher with responsibility for environmental studies most of whom had pursued recent in-service studies in the subject area. The good practice and sustained use of the school's grounds and its immediate locality, developed in the infant phase, appeared to have created a basis for continued development in the junior stages, within most primary schools, where environmental work showed a satisfactory balance between content and practice.

5.3.4 Influence of Regional Organisations

Major influences upon the provision of Environmental Education within Cleveland County have been the various LEA organisations with their respective documentation and courses of study, and the in-service courses in Environmental Education/Studies provided by the Department of Educational Studies, Teesside Polytechnic.

The Cleveland County Curriculum Review, document Q.1, 'Environmental Studies (Primary)', although

presented over eight years ago, in 1979, still forms an important source from which the LEA's teachers derive information concerning environmental: philosophy; inter-relationship with other areas of the curriculum; aims and objectives; skills and development; attitudes; content; themes and resources. Within the work great attention is paid to the concepts, attitudes, skills and knowledge of environmental studies that may be promoted by effective fieldwork practices. Indeed the document emphasizes,

'developing and deepening skills, concepts and attitudes using first-hand experiences as a basis for learning ...'

(C.C.C.R., 1979, p1)

Whilst analysis of the case-study fieldwork results would suggest that increasingly enlightened environmental practitioners are moving away from this document, to find guidance from commercially produced resources, it still remains as at least the basis of the published school policy of many of the primary-phase schools. The need now is for an up-date of the document and closer liaison between the LEA and other organisations involved in Environmental Education.

Cleveland LEA's advisory service has supported environmental work in a variety of ways. Direct teaching, mainly under environmental, historical or geographical in-set course banners, has been complemented by such regular publications as, 'CATHY News, (Cleveland Association of the Teachers of History), and 'R E News and Views'. The latter, 'R E Through Field Trips', Spring 1986, No 14. included comments pertinent to the spiritual, bio-ethical and aesthetic roles of environmental fieldwork.

Environmental fieldwork in more distant locations is provided by Cleveland LEA through funding and staffing several fieldwork centres. Carlton Centre, Dukeshouse Wood Centre and Stainsacre Hall remain the principal residential experiences for the authorities pupils. Sadly the majority of these initiatives operate independently.

The Department of Educational Studies, Teesside Polytechnic, formerly Teesside College of Education, has strongly promoted Environmental Education since its establishment in 1964. The pattern and content of these courses have previously been examined in chapter three, (3.4.2). Currently the Department of Educational Studies presents a range of award-bearing in-service education courses amongst which are the

Advanced Diploma in Environmental Education, (University of Durham validated); The Advanced Certificate/Diploma in the Teaching of History, (Historical Association validated); and Certificate in Primary Environmental Studies, and Primary Science, (both Polytechnic validated). Each of these courses has as one of its principal aims the promotion of environmental fieldwork. Recruitment to the courses, which follow an annual or biennial pattern, has regularly oversubscribed the allocation of fifteen teachers per course. The case-study analysis reveals a very strong influence produced by the combined influence of these courses upon environmental practices in the region's primary-phase schools. The survey reveals a large percentage of scale-post holders having successfully completed studies in one or more of the in-set courses. The nature and role of fieldwork in the survey schools strongly reflects the teachings of the environmental courses for concepts, attitudes, skills and knowledge. The pattern of work is further strengthened by regular participation in school, and field-based, activities by members of the Department's environmental 'core teaching team'.

T.U.M.P.A.C., the C.L.E.A.R. Centre and Urban Studies Centres have been frequently used by

primary teachers to support, or even instigate, fieldwork activities and are an important part of the areas environmental provision. Unfortunately, as both TUMPAC and CLEAR are Middlesbrough Manpower Services financed their influence does not extend throughout the county. However, with representatives from the LEA and the Polytechnic's environmental in-set courses participating in the management of these organisations some movement towards standard practice has materialised.

5.3.5 School Management and Teachers Professional Profiles

The interview and participant observation fieldwork, in particular, showed that many headteachers were active determinants of the nature and role of Environmental Education in Cleveland's primary schools. As in other walks of life good practice necessitates good leadership. However, negative as well as positive influences were revealed towards environmental work. Headteachers variously translated LEA guidelines for environmental studies, ignored it or even expressed ignorance of its content. Some managed to distort the subject integrative principles behind the C.C.C.R. document in the division of its content

between traditional subject areas. A number of headteachers, whilst voicing support for collective decision making, were described by their staff as autocratic. Fortunately, in most schools, staff and year-group meetings guaranteed the formulation of democratic policies, and the opportunity for the environmental studies post-holder to play a real part in the promotion and execution of these policies.

The effectiveness of the curriculum provided for Environmental Education was found to be much dependent on the leadership, commitment and in-service work of the post-holders or teachers with responsibility for environmental studies. The way in which they discharged their responsibilities varied from school to school being largely a function of individual perceptions of role requirements. The post-holders offered positive leadership to colleagues by issuing detailed programmes, including fieldwork, and helped to develop these into actual learning experiences. These post-holders also assumed responsibility for the acquisition and preparation of resources and for distributing these to other teachers. Others with responsibility in this area provided advice and support for fieldwork as and when it was required. Very few schools, however organised

kept any formal records of environmental fieldwork other than noting locations visited, in order to avoid repetition.

The teaching and training backgrounds of those with responsibility for environmental studies varied considerably and this was often reflected in the quality of that work in their school. A number of post-holders had received no further training in Environmental Education since their original training, which in some cases was now more than twenty years ago. This group was usually associated with a continuation of the traditional teaching approach to environmental work, both in content and method. As such their work had only a small field-based section. A substantial number of post-holders had no initial qualification in an environmental subject yet through the combined processes of absorption of knowledge and ideas from other colleagues over time and a selection of in-service courses, had undergone metamorphosis from the environmentally naive to at least the transitionally competent, if not the totally integrative inter-disciplinary environmentalist. Perhaps evidence of the most effective environmental work, with good attention to the value and purpose of fieldwork, related to those teachers who had topped up their original qualification in an environmental subject,

usually gained in the past ten years, with frequent attendances at day-release courses in this area, and participation in an award-bearing inset course in Environmental Education. Many new and exciting initiatives had been developed by these teachers who had also taken care to promote the dissemination of good practice and to develop wider awareness of curriculum development. Good practice generally was largely mirrored by effective fieldwork strategies.

This case-study, whilst primarily concerned with an examination of the nature and role of fieldwork in Environmental Education, has, through its use of convenience sampling procedures, highlighted practices promoted by INSET provisions. An effective evaluation of these provisions, that could usefully form a further line of enquiry, would of necessity require a more objective research strategy.

CHAPTER SIX : OVERALL CONCLUSIONS

This case-study has been concerned with the description and analysis of the nature and role of fieldwork in the Environmental Education of primary-phase pupils in Cleveland County. As a matter of perspective then, this work must stand as a local survey to be regarded as a contribution to the national situation in Environmental Education without making claim necessarily to represent that national situation. Thus, local implications have been identified which are not necessarily national in scale. Before generalisations, applicable to the wider state of fieldwork in Environmental Education can be made, therefore, comparable research needs to be undertaken on a broader regional scale.

In Cleveland County, then, fieldwork in the primary phase Environmental Education curriculum is generally unstructured, it reflects the historical development along fragmented lines, and it depends heavily on individual teacher initiative. The work is often erratic, irregular and ad hoc rather than planned in form. Although it was discovered that some teachers did in fact plan their environmental studies with various forms of fieldwork built in at specific times, for many the occurrence was largely

circumstantial and undertaken as the occasion arose, or as the television programme dictated. Consequently environmental fieldwork exists in a variety of forms which seldom may be regarded as a unified educational concept.

Environmental Education in general, and fieldwork in particular, in Cleveland schools, is much dependent on the leadership, commitment and in-service work of those teachers with designated responsibility for its development. Also, in this context, there was an observed association between the commitment of headteachers to Environmental Education, the way they worked with staff and pupils and the subsequent quality and quantity of fieldwork produced, or undertaken. Resources for environmental fieldwork, generally of adequate supply and diversity, similarly reflected these parallel levels of commitment and control. In consequence it is recommended that teachers, responsible for a school's Environmental Education programme, should participate in relevant in-service work to produce a balance, within their role, between curricular and management concerns.

The survey showed that schools identified several aims and objectives for Environmental Education which could be achieved through fieldwork. In

what, in practice, is a diverse rather than a coherent area, the principal roles often varied in relationship to the respondent's attitude toward particular aspects of environmental fieldwork - for example, teachers with a geographical background had often different perceptions to those of their historical or scientific colleagues. The initial qualification and subsequent professional development profiles of environmental studies post-holders, in particular, would appear to considerably influence the nature and role of this work. Apart from differences at this individual level, there were more general differences about the nature of attainable, or desirable, skills, concepts, attitudes and knowledge of Environmental Education and the roles of environmental fieldwork, between the views of teachers at the early and later stages of primary education which relate to child development and the readiness for learning. The standardisation that did exist, in this context, bore direct relationship to the published lists of aims, objectives and skills development issued in 1979 by Cleveland LEA, in its 'Environmental Studies (Primary) Curriculum Review', document. Bioethics, the essence of acceptable definitions of Environmental Education, figured infrequently in the hierarchy of teachers' roles for

fieldwork, so relegating much of that work to the level of an environmental study. Consequently, it is recommended that each school should be encouraged to promote informed personal and community involvement in environmental issues.

The location, organisation and general characteristics of the schools have been shown to exercise varying degrees of influence upon the way they utilise their own premises, grounds and neighbourhood locations for environmental fieldwork. Few individual schools or teachers, however, were in possession of a thorough knowledge of their local area potential and consequently, it is suggested that each school should compile an inventory - a resource bank - of the habitats, environmental phenomena and opportunities for fieldwork within its own immediate neighbourhood. Other, real or perceived, organisational difficulties from which environmental fieldwork appeared to suffer could frequently be associated with the mind of the less committed teacher.

The local education authority, the Department of Educational Studies, Teesside Polytechnic and a number of environmental organisations provide a wide range of services to support the Environmental Education work of schools. There

are difficulties, which it is recommended are in need of investigation, which hinder the effective working together of these organisations. In the light of the impending imposition of a national curriculum and the possible reversal of policy to traditional subject components of Environmental Education, the continuation of in-service education that embraces the substance of the IUCN's definition is declared as essential if the problems of the modern world are to be confronted, and a global ethic established.

In conclusion, I must accept that I have often preferred my own understanding and interpretation of Environmental Education and the value of its fieldwork. The limited recommendations I have stated above are based on the experience I have gained during the course of this research. Paradoxically, my research falls victim to its own methodology as its approach is similar to that of illuminative evaluation which, at least in a scientific sense, cannot be objective. Therefore, in this context, no great claims for the validity of the research are presented but that rather it provides a perspective towards fuller understanding of the complexities involved in fieldwork practices within Environmental Education at the primary phase.

With hindsight I see many flaws with this research, both in terms of method and scope of enquiry. Given the time over again I would devise methodological strategies that would give more precise response and generate additional quantitative evidence, capable of being readily translated, through data reduction, into data display. Attention would also have extended to the environmental fieldwork requirements and practices of children with special educational needs, and to those of the ethnic minorities. However, at the start of the research decisions were taken in the light of my limited understanding and experience of curriculum research. It is in this context that I have come to realise that there is still more to learn about the nature and role of fieldwork in Environmental Education than I have come to understand in one research project.

APPENDIX A

CLEVELAND COUNTY CURRICULUM REVIEW : ENVIRONMENTAL
STUDIES (PRIMARY). DOCUMENT Q 1 (part)

PARA 4 AIMS and OBJECTIVES

The teacher of Environmental Studies aims

- (a) to give children the opportunity, through investigations, to develop the ability to think and enquire purposefully;
- (b) to encourage in the child critical faculties and disciplined thinking;
- (c) to utilise the child's natural curiosity and develop a desire for further knowledge;
- (d) help the child to understand and also be capable of using specific conceptual tools;
- (e) to foster in children both a sympathy and an empathy with people in different places and times;
- (f) to develop an understanding of the inter-relationship of man, his culture and biophysical surroundings. As a result of the nature of their investigations, there will be a recognition and realisation of their immediate and expanding surroundings;

- (g) to develop basic tool skills and to stimulate through research, experimentations and observation;
- (h) to enable the child to make personal value judgements;
- (i) to enable children to communicate their findings and also to enjoy a wide variety of learning situations

PARA 5 SKILLS and DEVELOPMENT

We have moved away from the classical view of education, i.e. that education is a matter of stocking children's minds with definite unquestioned knowledge. Present day curriculum aims are directed towards developing learning experiences through which pupils not only gain useful knowledge, but also acquire effective procedures in learning.

A truly environmental approach should incorporate, exercise and develop the following skills.

Basis Skills

The ability to: Read effectively and purposefully; write legibly and neatly; listen purposefully and attentively; communicate thoughts clearly; discuss and debate issues;

question and research; present findings - orally either directly or recorded, - through literacy - narrative report or essay - through numeracy - mathematical or statistical, - graphically - through maps, designs, graphs etc., - in aesthetic forms.

Intellectual Skills

The ability to: observe; report; record; identify categories; define; compare and contrast; generalise; predict; verify predictions; develop models; formulate hypotheses; test hypotheses; synthesise; empathise; make decisions.

Practical Skills

The ability to: - use scientific equipment eg thermometers; stream - flow instruments, drawing equipment etc. - use tape-recorders, cameras and other audio visual aids - read and construct simple maps based on an understanding of compass points, scale factors, O.S. symbols etc.

Study Skills

The ability to: - use a variety of source of information e.g. reference books, library catalogues - subject index and classified

catalogue; - documentary evidence; - atlases; - statistics; - first hand experience etc.

Evaluate the reliability of such sources in terms of - date of publication - publisher's reputation - author's qualification - authenticity - bias etc.

Apply flexible reading rates e.g. skimming, scanning and intensive reading.

Use reference aids e.g. - dictionary - thesaurus - glossary.

Use the components of a book in order to extract relevant information e.g. forward, preface, introduction, chapter headings, glossary, bibliographical references, lists of illustrations.

APPENDIX B

SURVEY OF ENVIRONMENTAL FIELDWORK IN PRIMARY SCHOOLS :
CLEVELAND COUNTY

Name of School: _____

Head Teacher: _____

No. of pupils on roll: _____

1 THE PLACE OF ENVIRONMENTAL WORK IN THE SCHOOL CURRICULUM

1.1 What form does it take? What is included (e.g. separate geography, history, science, thematic studies). Environmental Studies? Does it have a specific title?

1.2 How is it timetabled? (Regularly and formally timetabled or flexibly. How much time and how often?)

1.3 If a teacher has designated responsibility for Environmental work, what is their role and function in the school? Does this teacher exchange classes for environmental work? What was this teacher's main subject in initial training?

2 THE NATURE OF ENVIRONMENTAL FIELDWORK

2.1 What use is made of the school and its grounds in environmental work? Is this work related to a specific season or time of year? How much time does this involve? Is any specialist equipment used? (e.g. for measurements, weather etc).

2.2 What use is made of the local environment? Is this work related to a specific season or time of year? How much time does this involve? What specialist equipment is used and how is data recorded?

2.3 What use is made of environments necessitating the use of transport? How much time does this involve? Are there any special organisational features? (e.g. parent help with supervision, use of minibus etc). What specialist equipment is used and how is data recorded?

2.4 How are decisions made about the choice of fieldwork activities in environmental studies? (e.g. left to individual teachers, determined collectively etc).

2.5 How much time is spent on follow-up activities related to the fieldwork outlined in 2.1, 2.2 and 2.3 above?

3 ACCOMMODATION

3.1 Brief indication of the classrooms, activity rooms, hall etc used for environmental work.

3.2 Nature of the school grounds and yard.

- 3.3 Opportunities for and constraints upon the development of environmental work in (a) the school and (b) its immediate surrounds.

4 SCHOOL BASED RESOURCES FOR ENVIRONMENTAL WORK

- 4.1 Please indicate briefly the range of learning resources (e.g. book collection, maps, audio-visual aids, measuring equipment etc) available to support this aspect of pupil learning. Are these held centrally or distributed to classes?

- 4.2 Are external agencies used in support of environmental work? e.g. Museum Loan Service, visiting speakers, library service etc.

5 What RECORDS are kept by individual teachers, by the school, and what ASSESSMENTS are made of pupil attainment in field related activities in environmental studies?

6 LONGER TERM PATTERN OF ENVIRONMENTAL WORK

If possible, for ONE identified fourth year class, or group of fourth year pupils, list in sequence the environment fieldwork experience of the pupils during their period in the junior school or junior phase of a primary school.

7 Any other relevant information.

Signed

APPENDIX C

The Semi-Structured Interview Questions

Introduction

Have you had any formal training in Environmental Education?

(Prompt): Initial qualification; Inset?

A The Nature and Organisation of Environmental Fieldwork

1 What form does environmental teaching take in the school?

(Prompt): separate subjects or thematic studies?

2 Do you regard fieldwork as being particularly relevant to Environmental Studies?

(Prompt): how many times per year does the class experience outdoor work?

(Prompt): Autumn; Winter; Spring and Summer?

3 Which localities have the class visited during the past year?

(Prompt): the school grounds/playing field; the immediate locality of the school; more distant environments requiring the use of transport?

(Prompt): do you make use of a County field or urban studies centre?

4 What resources do you have available for environmental fieldwork?

(Prompt): maps. measuring equipment, reference materials, trails?

B The Aims and Objectives of Environmental Fieldwork

1 What opportunities are provided by environmental fieldwork and their follow-up activities for the use and development of scientific skills?

(Prompt): observing; selecting; investigating; classifying; making hypotheses; experimenting; using tools and equipment and analysing secondary sources? (tape-recorders and cameras).

- 2 Do you use environmental fieldwork as a stimulus for linguistic and mathematical development?

(Prompt): stimulus for language development; self-expression; encouragement of critical faculties; fostering of mathematical skills through study of patterns and processes in the natural world.

- 3 Does the collection and recording of fieldwork facilitate communication of findings and ideas?

(Prompt): writing; pictures; models; diagrams and maps

- 4 What opportunities are afforded to your class for field-based study of social and political aspects of the environment?

(Prompt): the interdependence of human communities; shops; industry; services?

- 5 Do you use fieldwork to encourage the development of aesthetic and spiritual perceptions of the environment?

C The Role of Environmental Fieldwork : Cleveland Curriculum Guidelines

- 1 Have you read the Cleveland LEA's Curriculum Review Document, 'Environmental Studies - Primary', issued in 1979?

If the answer to C1 is 'yes' then proceed to C2, otherwise jump to C3.

- 2 Have you consciously incorporated any of the C.C.C.R.'s proposals in documentation forming part of fieldwork preparation?

(Prompt): Concepts; attitudes; skills or knowledge.

- 3 Which of the following roles for environmental fieldwork, specified by the C.C.C.R., would you choose as being most closely related to the purposes for which you employ fieldwork practices with your pupils?

a) to develop the ability to think and enquire purposefully;

b) to encourage in the child critical faculties and disciplined thinking;

c) to utilise the child's natural curiosity and develop a desire for further knowledge;

- d) to enable children to make personal value judgements;
- e) to enable children to communicate their findings and to enjoy a wide variety of learning situations;
- f) to develop basic tool skills and to stimulate, through research, experimentation and observation;
- g) to develop an understanding of the inter-relationship of man, his culture and biophysical surroundings.

D The Bioethical Role of Environmental Fieldwork

- 1 Has your environmental fieldwork an ethical objective?

(Prompt): the promotion of considerate behaviour and codes of conduct?

- 2 Have your pupils studied 'The Country Code'?

- 3 Do you use field-based locations to foster in children both a sympathy and an empathy with people in different places and times?

(Prompt): relict features; religious buildings; graveyards.

- 4 Has your environmental fieldwork included studies of conservation?

Conclusion

- 1 **Constraints:** What are the main problems that you have encountered in using environmental fieldwork in your teaching?

(Prompt): (a) The timetable;

(b) staffing - levels; expertise; relationships;

(c) encouragement, (or its lack), by your headteacher; E.S. Postholder; LEA Adviser;

(d) availability of money or resources;

(e) others - please specify.

- 2 **Benefits:** What have been the main benefits that you have obtained by engaging in environmental fieldwork with your pupils?

PRIMARY SCHOOL AREAS.

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Fishburn

nd Localities in the Photographic Transect.

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MAP I

APPENDIX E**The Location and Size of Schools Participating in the Case-Study Fieldwork**

AREA A. HARTLEPOOL	Number of Pupils
Brougham County Primary	424
Elwick C E Controlled Primary	61
Golden Flatts County Primary	278
Grange County Infant	227
Grange County Junior	268
Greatham C E Controlled Primary	84
Jesmond Road County Primary	236
Jesmond Road County Junior	331
Lynnfield County Primary	382
Stranton County Primary	380
Ward Jackson County Primary	102

Total of pupils from survey schools = 2,773. (7 primary, 2 junior and 2 infant schools).

AREA B BILLINGHAM

Billingham C E Controlled Junior	284
Low Grange County Junior	207
Northfield County Infant	190
Roseberry County Infant	237
St John's R C Aided Primary	127
Wolviston County Primary	75

Total of pupils for survey schools = 1,120. (2 primary, 2 junior and 2 infant schools).

AREA C STOCKTON

Fairfield County Infant	243
Fairfield County Junior	257
Oxbridge Lane County Primary	450
St Mark's C E Aided Junior	278
The Glebe County Primary	272
Tilery County Infant	200
Tilery County Junior	228

Total of pupils from survey schools = 1,928. (2 primary, 3 junior and 2 infant).

AREA D EAGLESCLIFFE, YARM AND KIRKLEVINGTON

Egglescliffe C E Controlled Primary	191
Junction Farm County Primary	205
Kirklevington County Primary	95
Layfield County Primary	275
St Mary's C E Aided Primary	59
The Links County Primary	274
Yarm County Primary	313

Total of pupils from survey schools = 1,412 (all primary).

AREA E THORNABY

Bader County Primary	394
Mandale County Infant	224
Mandale County Junior	243
Tedder County Infant	190
Tedder County Junior	250

Total of pupils from survey schools = (1 primary, 2 junior and 1 infant).

AREA F MIDDLESBROUGH (CENTRAL AND EAST)

Abingdon County Infant	203
Abingdon County Junior	288
Acklam Whin County Primary	468
Ayresome County Junior	354
Beechwood County Infant	227
Beechwood County Junior	246
Berwick Hills County Primary	324
Green Lane County Primary	466
Linthorpe County Infant	210
Marton Grove County Primary	329
Newham Bridge County Primary	211
Overfields County Primary	270
Pallister Park County Primary	298
Park End County Primary	462
Sacred Heart R C Aided Primary	250
St Alphonsus' R C Aided Primary	235
St Hilda's C E Controlled Primary	57
Thorntree County Primary	442

Total of pupils from survey schools = 5,340. (12 primary, 3 junior and 3 infant).

AREA G MIDDLESBROUGH (MARTON/NUNTHORPE/HEMLINGTON/COULBY NEWHAM).

Captain Cook County Infant	245
Captain Cook County Junior	292
Lingfield County Primary	133
St Augustine's E C Aided Primary	85

Total of pupils from survey schools = 755 (2 primary, 1 junior and 1 infant).

AREA H SOUTH BANK/GRANGETOWN/ESTON

Attlee Road County Primary	306
Bankfields County Infant	162
Bankfields County Junior	212
Ravensworth County Junior	176
St Mary's R C Aided Infant	136
St Mary's R C Aided Junior	128
Whale Hill County Primary	384

Total of pupils from survey schools = 1,504. (2 primary, 3 junior and 1 infant).

AREA I REDCAR/MARSKE

Errington County Infant	167
Errington County Junior	192
Ings Farm County Primary	295
John Emmerson Batty County Primary	283
Lakes County Primary	390
New Marske County Infant	176
New Marske County Junior	242
St Dominic's R C Aided Primary	204

Total of pupils from survey schools = 1,949 (4 primary, 2 junior and 2 infant).

AREA J GUISBOROUGH/SKELTON/LOFTUS/EAST CLEVELAND

Badger Hill County Primary	182
Belmont County Junior	260
Galley Hill County Primary	265
Hummersea County Primary	169
Loftus County Junior	268
Newstead County Primary	428
Saltburn County Infant	193
Skelton County Infant	285
Skelton County Junior	328
St Joseph's R C Aided Primary	178
St Peter's C E Controlled Primary	330

Total of pupils from survey schools = 2,886. (6 primary, 3 junior and 2 infant).

GRAND TOTAL OF SURVEY SCHOOLS = 84 (45 primary, 21 junior and 18 infant)

GRAND TOTAL OF PUPILS = 20,968 (11,885 primary, 5,332 junior and 3,751 infant).

APPENDIX FData Relating to the Role of Fieldwork in Environmental Education Resulting from the Participant Observation Exercises

Introduction: As shown in chapter 4 the case study research pattern rests on four related strategies. The collection of documents and a questionnaire survey focus upon the nature of environmental fieldwork. An interview schedule and participant observation exercises are similarly combined to more narrowly focus upon the role of environmental fieldwork. The information presented below, which was gathered during field exercises associated with the participant observation schools located on the map attached, is in addition to the results of the interview and participant observation surveys examined in chapter 5, section B.

School Area Observed fieldwork and its educational role

- | | | |
|---|---|---|
| 1 | A | This school was currently participating in an Educational Support Grant scheme. (Craft design technology). Environmental fieldwork focused upon the creation of an urban trail emphasizing structural, design and aesthetic themes and the promotion of skills. |
| 2 | C | Nine visits were made to this school during the research period and work was observed in the school, its locality and a more distant environment. Streetwork and rural trails paid attention to subject integration and to the promotion of bioethics. Art, mathematical and language skills were fostered. |
| 3 | D | A hedgerow survey involving plant identification, dating techniques and mapping exercises promoted analytical and cartographical skills. Recording techniques catered for aesthetic concerns and were related to language development. |
| 4 | F | One brief visit emphasized observational and comprehension skills relating to a TUMPAC produced park trail for infants. |
| 5 | F | Two field visits by this inner urban area primary school explored urban renewal. A highly motivated teacher recognised the extent of pupil knowledge of their locality and helped them to develop skills in interpreting this knowledge. |
| 6 | G | One brief visit with a junior class to a museum/park. The aesthetic role of fieldwork formed the basis of an environmental trail - art, craft, poetry and creative writing ensued. |
| 7 | H | Collecting; analysing; mapping and measuring skills were observed in the context of the school courtyards and playing field. |
| 8 | J | A field and classroom based activity focused upon subject integration resulting from the analysis of a local graveyard. Language, mathematical and artistic skills were evident. |

Trimdon Foundry

PRIMARY SCHOOL AREAS.

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Fishburn



Interview Schools.



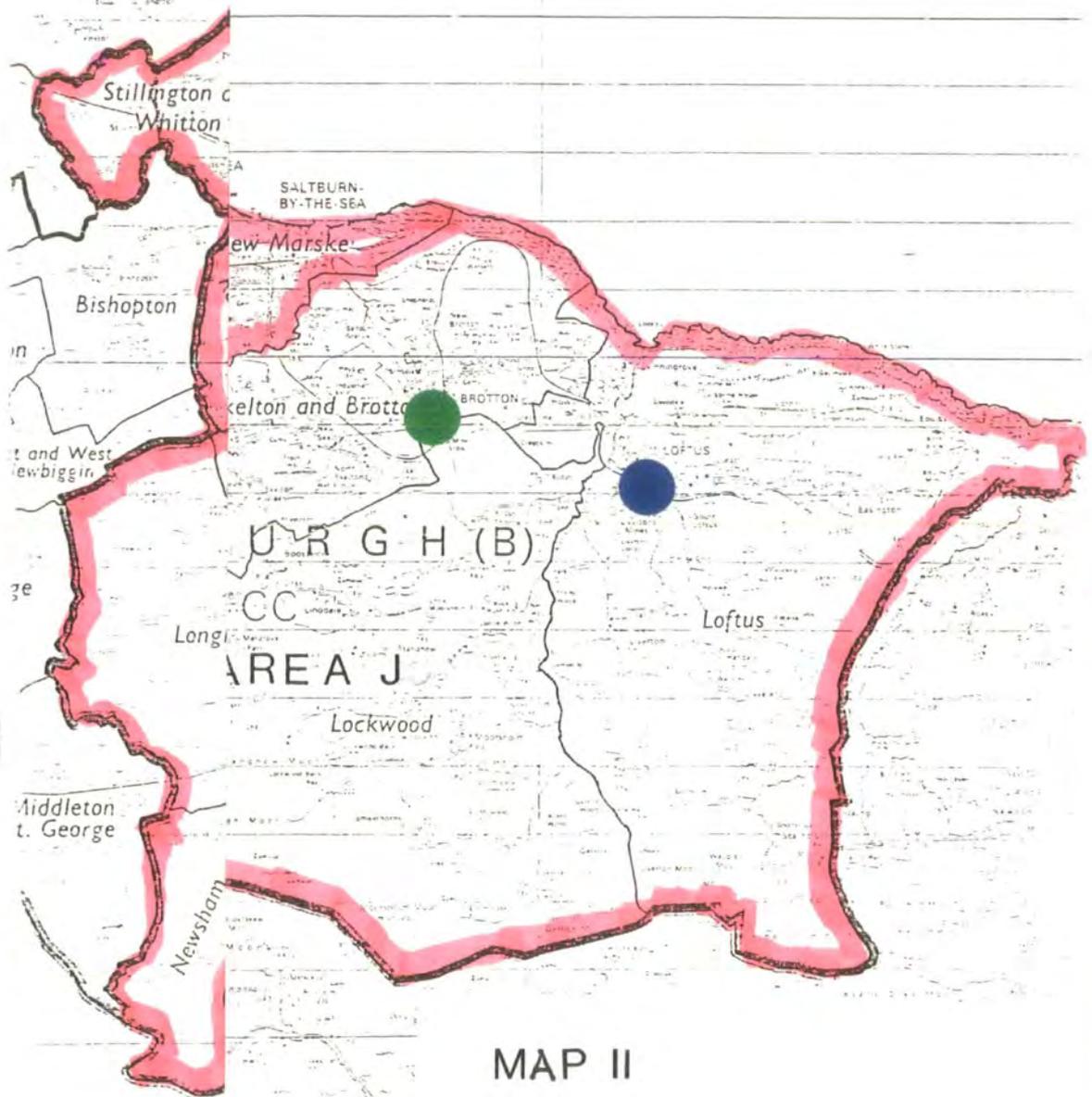
Interview/Participant Observation Schools.

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MAP II

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