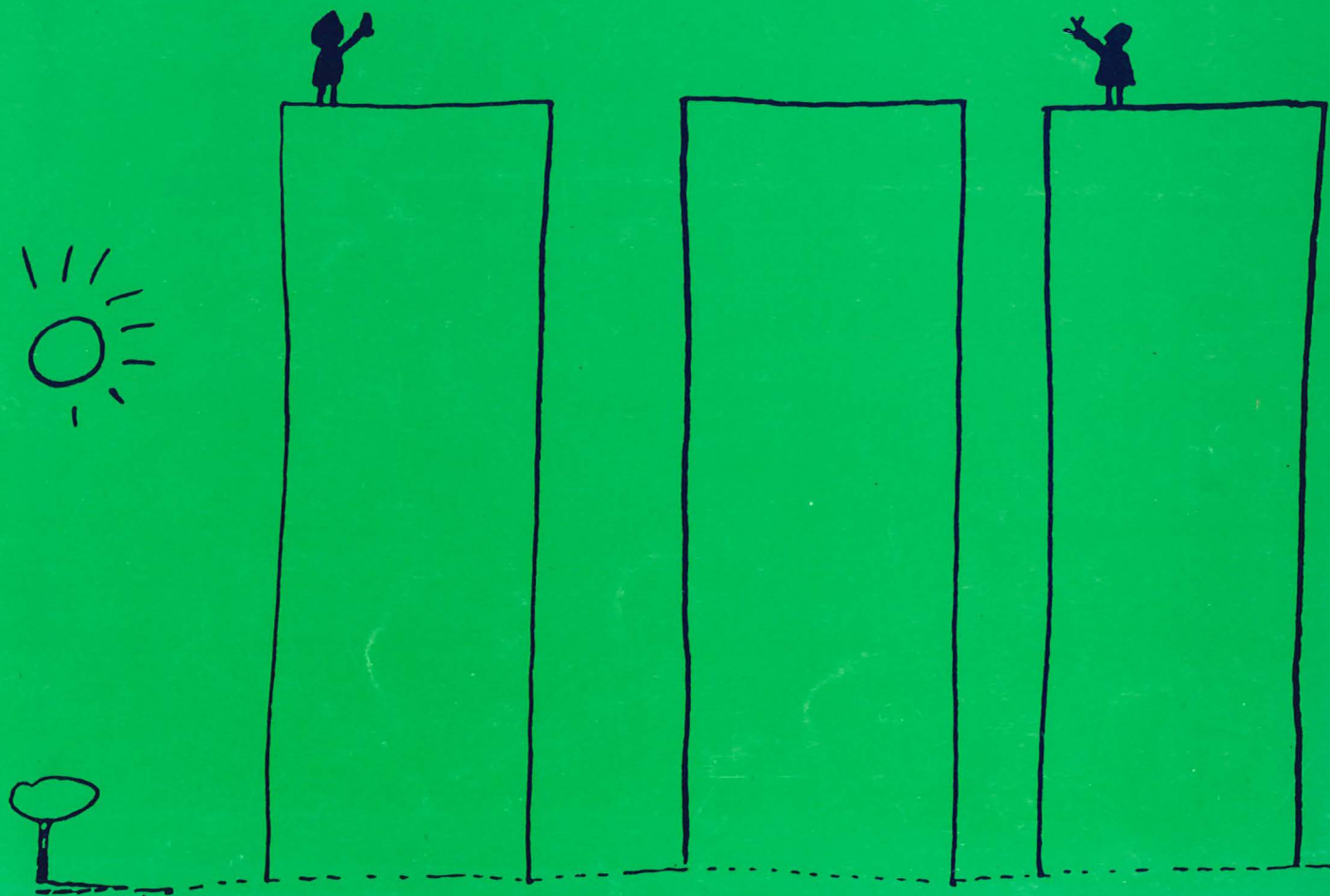


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Handbook
on environmental education
in a totally urban setting



Strasbourg 1979

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COMMITTEE FOR THE CONSERVATION OF NATURE
AND NATURAL RESOURCES

HANDBOOK ON ENVIRONMENTAL EDUCATION
IN A TOTALLY URBAN SETTING

by

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CONTENTS

	<u>Page</u>
Introduction	1
Chapter I Objectives of environmental education in an urban setting	4
Chapter II Teaching, training and curriculum development	14
1. Teaching	14
2. The training of teachers	32
3. Curriculum development	36
Chapter III Facilities	39
Chapter IV Case studies	56
The TCPA education unit and the art and the built environment project	56
The Fleur de Lis Heritage Centre in Faversham	59
School-children and planning - joint projects	64
St Mary's Centre, Chester	68
Notting Dale Urban Studies Centre	71
Stevenage Urban Studies Centre	79
The Bristol town trail	84
Games and the environment	87
Creative writing in urban studies - This Poplar where we live	95
Harpurhey High School, Lower School, Manchester ..	106
Nature study scheme, Inner London Education Authority	109
A pre-service teacher training course in environmental science, at Chelsea College	111
Selected bibliography	116

(Drawings by Don Aldridge)

INTRODUCTION

"Environmental education is the process of recognising values and clarifying concepts in order to develop the skills and attitudes necessary to understand and appreciate the interrelationships amongst Man, his culture and his biophysical surroundings."

This definition, formulated by the International Union for Conservation of Nature and Natural Resources (IUCN), has been accepted by the Council of Europe group of experts concerned with an examination of active methods in environmental education and may be taken as implicit in all that is said in this Handbook.

In the past those aspects of the school curriculum which could be classified as being of environmental importance have generally been dealt with independently within several subject disciplines. The past decade has been characterised by developing dialogue between different subject disciplines in an effort to arrive at a consensus on the overall aims of environmental education. Major contributions to this debate have been made by both the sciences and the humanities. With each discipline offering its own skills and viewpoints, it is possible to identify several separate subject areas which have had a profound influence on the development of the broad environmental ethos. History has made an important contribution to the cultural aspects of environmental education, encouraging an awareness of the influence of the past on the present; encouraging studies of the histories of local communities and major changes in their patterns of organisation, together with the effects of industrialisation etc.

The more traditional aspects of geography have sought to explain structures, patterns and systems within the environment; considering the physical structure of the countryside, patterns of settlement and distribution of resources and systems of trade and communication. More recently, these two subjects have both been intimately connected with the development of urban studies, considering not only the physical structure of the built environment but also its social structure. From the general scientific field has come an increasing interest in energy and materials; while biologists have added the ecological aspect. They are increasingly concerned with the concept of the ecosystem and problems which affect this comparatively stable biological system. Rural studies have added an interest in environmental management through gardening, horticulture and agriculture, with an emphasis on good husbandry. Finally, teachers of outdoor pursuits (recreation in the countryside) have also become aware of the relevance of their own activity to wider environmental study.

There are almost as many approaches to environmental education as there are teachers concerned with the topic. However, one recent curriculum development project in the United Kingdom (Schools Council "Project Environment") identified three main methods of approach:

1. Teaching from the environment

This approach simply makes use of the environment outside the school classroom as a source or stimulus for educational work in a wide variety of subject disciplines.

2. Teaching about the environment

This involves making the environment itself an object for study and helping students to understand its structure and function.

3. Teaching for the environment

This is an educational approach which seeks to instil in the children certain attitudes and opinions which taken together have been defined as "environmental ethics".



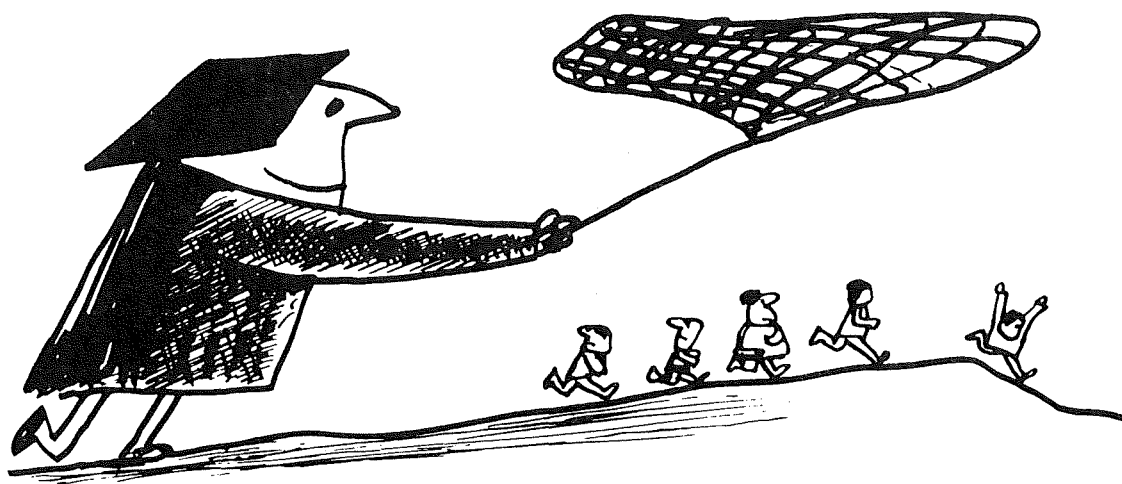
Environmental ethics

This Handbook concentrates on environmental education in a totally urban setting. The title is carefully chosen and its implications should be clearly understood. It does not mean only urban environmental education ie detailed study of the city from all points of view. It is also concerned with the problems to be encountered in teaching on a broad environmental basis in schools within inner-city areas. Ideally it will lead children to understand that the city in which they live is not independent of the countryside surrounding it; that the web of interrelationships spreads outwards from their own home town throughout the world.

Conversely, any environmental education programme which concentrates solely on the urban setting will be seriously unbalanced. The needs of urban man dictate the management of most of our countryside, and the environmental influence of the city reaches far beyond its boundaries. Moreover, many of the environmental topics which must form the core of a school syllabus can only be considered on a regional, national or world basis. Thus, although the majority of our children are educated primarily in cities, they must not be restricted to a study of the city.

If the objectives of environmental education remain broadly the same for both rural and urban children, why is it necessary to pay particular attention to the teaching of the subject in an urban setting? There are two main reasons. The first is the need to reaffirm the importance of a balanced approach. Many of the formal subject areas which have traditionally influenced the development of the "environmental curriculum" have been rurally orientated and have, to some extent, given too little emphasis to the implications of urbanisation. More recently, in the United Kingdom, there has been a rapidly increasing interest in urban studies, and there would seem to be some danger that disciples of this particular trend may devote too little attention to the broader ecological issues. The second reason is the nature of the city itself which presents both intransigent problems and exciting opportunities for environmentally oriented teaching. To overcome the problems, teachers may require access to adapted teaching techniques or special facilities while, without careful study, some of the more interesting opportunities offered by the city may pass unrecognised.

Development of more specialised skills



The structure of the Handbook is simple. It is divided into four main sections. In Chapter I there is a brief review of objectives in environmental education. Chapter II introduces some comments on teaching, teacher training and curriculum development. It mentions those techniques thought to be most appropriate to an active approach to environmental education and proposes some measures to strengthen and extend environmental teaching through teacher training and development of new curriculum materials. Chapter III presents a resumé of appropriate facilities that may be present in any major urban area. Chapter IV includes a number of case studies contributed by people closely involved with their development and application.

While some of the content is very restricted, concentrating purely on the urban setting, it has proved necessary to include in some sections material of a much broader nature. For example, when discussing teaching techniques and curriculum development, it has been appropriate to include approaches which could be used for a wide variety of subjects and need not be restricted to the teaching of environmental education in a totally urban setting. However, efforts have been made to select from this wider body of knowledge aspects which seem particularly fitting to the subject under discussion.

The Handbook is not claimed to be a definitive approach on this topic. The purpose of the book is more to serve as a starting point; to form a basis for discussion in member states which may be considering the development of their own programmes in environmental education.

CHAPTER I

OBJECTIVES OF ENVIRONMENTAL EDUCATION IN AN URBAN SETTING

No programme of environmental education can be complete without detailed reference to the urban situation. For 80% of our population, the city constitutes their immediate biophysical environment, and represents a major part of their more recent cultural heritage.

Selecting objectives

It is essential that any teacher or group concerned with the creation of an environmental course should have clearly defined objectives before they begin. These objectives, once established, will serve as criteria against which to judge the validity of inclusion of any item of information, or any particular technique, in the final course content. There are three broad categories of objective:

1. General educational objectives

Course content must be judged carefully against the objectives of the educational system as a whole. For example, a national system which aimed at producing open-minded citizens, would not be well-served by an environmental course which presented only highly emotional and one-sided information on environmental matters.

2. Overall environmental objectives

It is obvious that any course must be well-balanced between local and general, rural and urban, regional and world-wide topics.

3. Urban

Any course for city schools must pay particular attention to the urban surroundings. Here there will be issues of two main types. Firstly, those of general urban interest, for example, social structure, planning issues, urbanisation, resource distribution, and those of relevance to the particular area, including the environmental effects of a particular heavy industry, or problems of tourism and recreational pressure.

THE FIRST TEN YEARS OF SCHOOLING

The cognitive objectives which appear below are those proposed for inclusion in curriculum during the first ten years or so of a child's school career. For convenience they are grouped under a number of separate headings, although the link between these headings will be apparent to any teacher. In general terms the topics listed under each heading are shown in increasing degrees of sophistication, beginning with those items most suitable for use with young children and ending with those for investigation by children of 15 or 16 years of age. The objectives do not refer specifically to the urban setting, but constitute the content of a curriculum course desirable for all pupils. However, in most cases, the main proposals are supplemented by suggestions of topics particularly suitable for study by city children. Where no such suggestions are made it is because the urban link is completely obvious.

These objectives are, of course, a personal selection based on classroom experience, teacher discussion groups and the work of other bodies, including Local Education Authorities, National Association for Environmental Education (UK) and IUCN.

Physical factors

ATMOSPHERE

Understanding of the existence of the atmosphere - its limit and constituents. Importance of air to life. Oxygen and carbon dioxide cycle. The effects of pollution. Pollution control and its implications.

Urban aspects: Studies of local pollution problems. Appreciation of the atmospheric effects of large cities. Problems of pollution control - its effect on production and the economy.



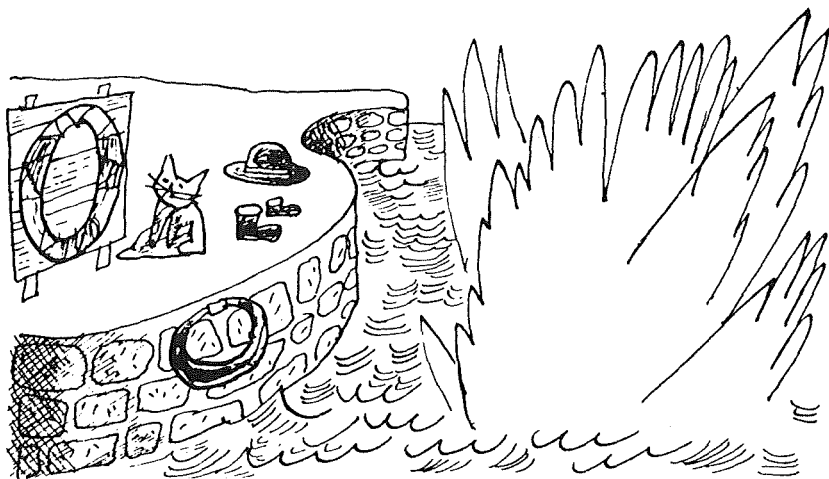
CLIMATE

Local weather. Climatic variations. Main climatic zones of the world. Causes of climatic variation. Implication of climatic variation for living things. Effect of climate on man's distribution and activities.

Urban aspects: Climatic influence on the siting of a particular settlement. The city as a moderator of climatic extremes and creator of micro-climates. The relevance of climate to the design and construction of the city and its buildings.



WATER



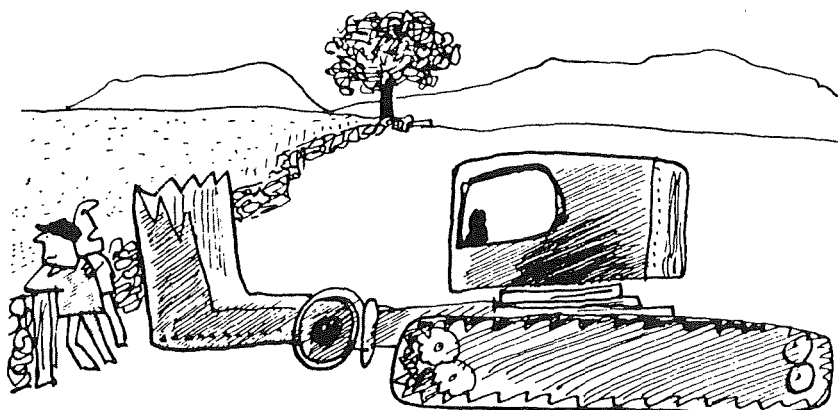
The physical properties of water and its importance to life. Water as a natural resource. The water cycle. The world distribution of water. Water and rainfall as controlling factors in the development of (a) biological communities, (b) human settlements. The oceans, their climatic effects and their biological communities. The physical, chemical and

biological resources of the oceans. Man's effect on the water cycle - pollution, its consequences and control.

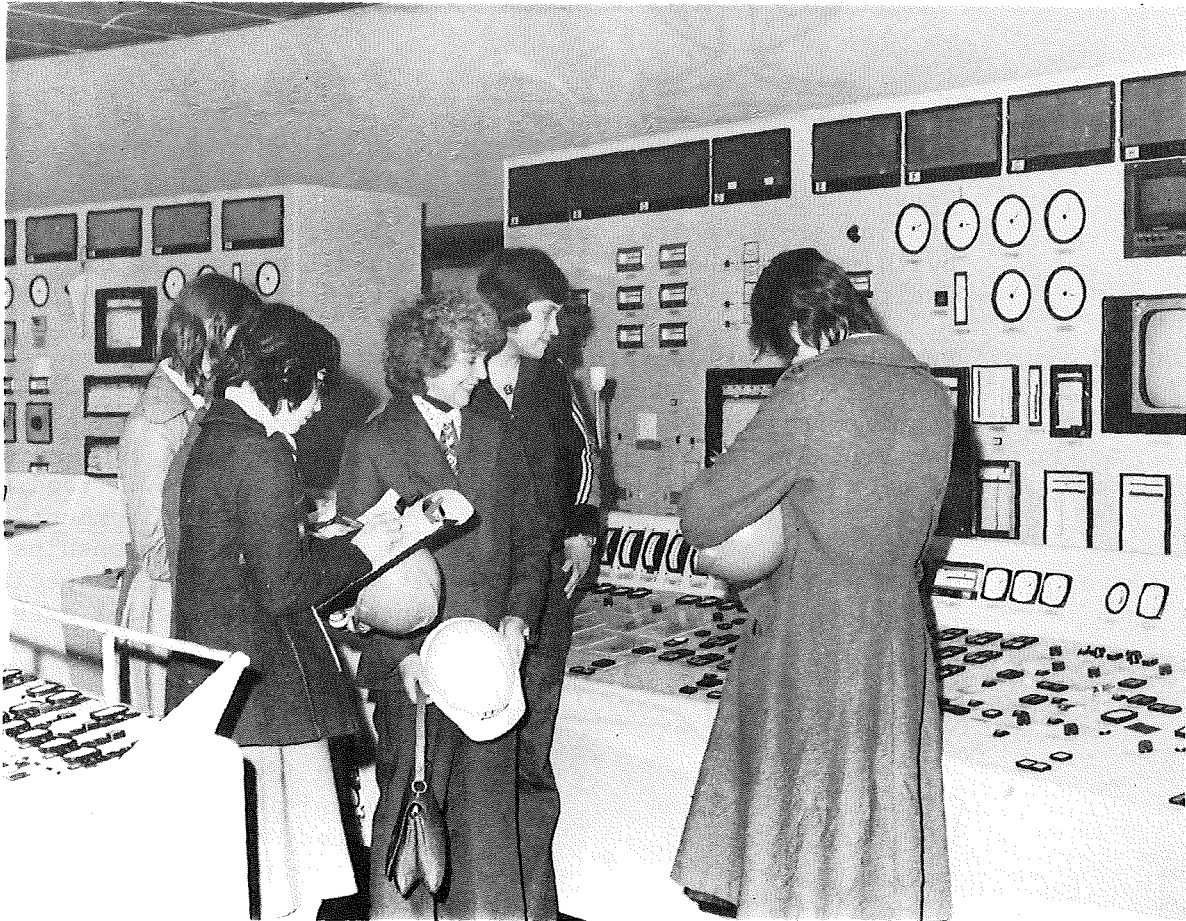
Urban aspects: Sources of the city's water. Purification and distribution. Techniques of water conservation. Disposal of wastes. Studies of local pollution using biological indicators and chemical and physical analysis. The causes and effects of local pollution. Current measures for its control.

LAND

Variation in land forms and landscape both local and world-wide. Recognition of common rocks and minerals. Recognition of soil types. Importance of soil to life. Effect of soil type on vegetation. Distribution of mineral resources. Extraction of minerals. Limitations imposed by non-renewable mineral resources. The nature and causes of soil erosion. Methods of soil and mineral conservation. Soil improvement. Restitution of marginal land, desert, etc.



Urban aspects: Study of local soil and rock types. Surveys of present urban land use. Study of local land use - planning issues. Soil conservation exercises in local gardens and parks. Restoration of derelict land.

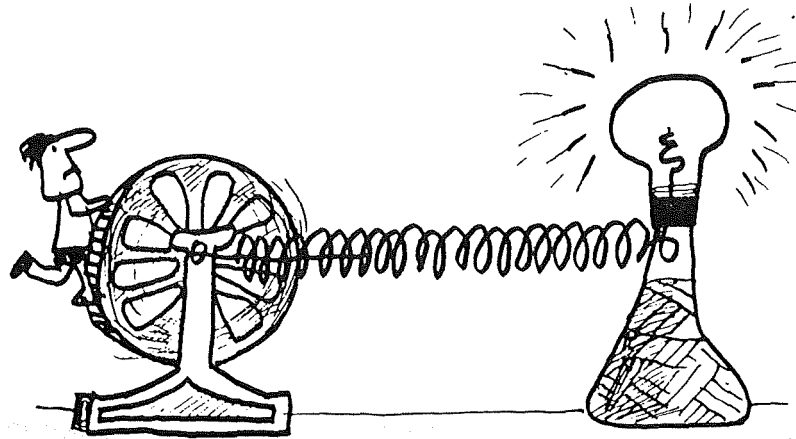


A party of school-girls taking note of control panel details being given by a unit operator and a station guide. The panel controls are of the 500 MW generating unit at Fawley Power Station, United Kingdom.

(reproduced by kind permission of the Central Electricity Generating Board, Fawley Power Station)

ENERGY

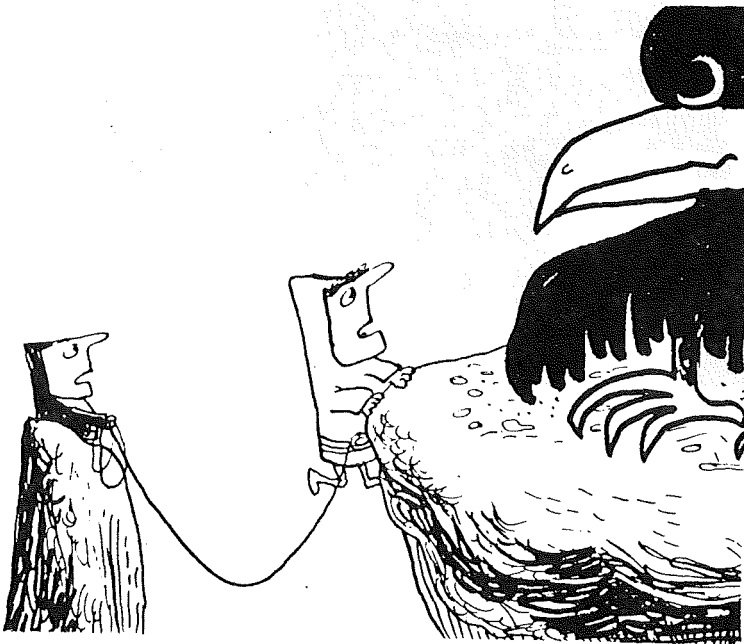
The sun as a source of energy. Variations in availability of sunlight. Simple study of energy forms and their use by man. Energy conversion experiments. Energy flow in the ecosystem. Local and world-wide distribution of renewable and non-renewable sources. Energy conservation - alternative technology.



Urban aspects: Study of local energy supply and use. Domestic and industrial energy consumption. Energy loss from city buildings. Methods of conservation available to the city dweller. Energy economy of transport, heating, lighting, etc.

BIOLOGICAL

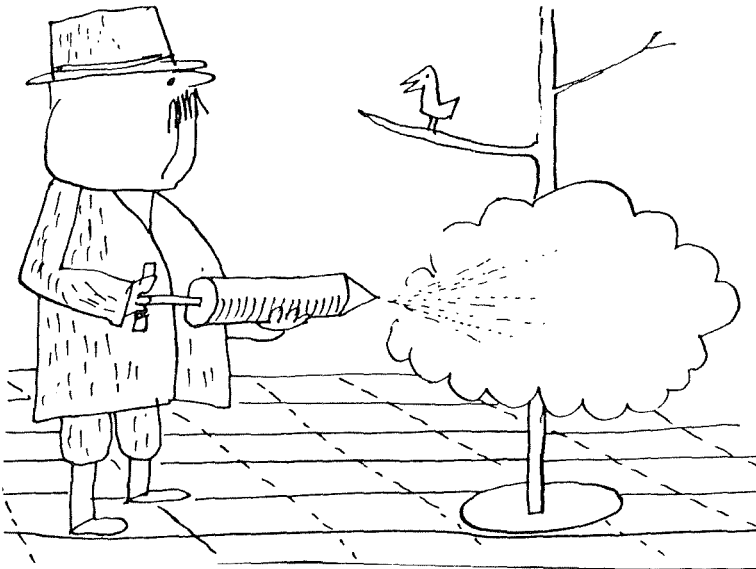
Personal contact with a variety of organisms. Recognition of characteristics and main groups of animals and plants. Basic requirements of living things. Their dependence on physical factors. Simple interrelationships. Producers and consumers. Predators and prey. Food chain. Adaptation to environment. Complex interrelationships - the food web. Intra-specific interaction (parental care, social behaviour etc). Inter-specific interaction (competition, predation, population control etc). Complex interrelationships (communities and habitats). The ecosystem. Cyclical nature of material flow in ecosystem. Linear flow of energy in ecosystem. Ecological balance. Factors disrupting ecological balance. Need for conservation. Methods of conservation. Dependence of future man on ecological balance.



Urban aspects: Studies of domestic animals, cultivated plants and urban wildlife. Encouragement of urban wildlife conservation. Creation of wildlife habitats. Study of the effect of cities on the ecosystems. Comparison of cities and ecosystems.

Human factors

MAN AS AN ENVIRONMENTAL INFLUENCE



Man as an animal (basic needs, form and function). Man as part of an ecosystem (hunter/gatherer). Man as an agent of environmental change (farmer). Man as a creator of environments (man the builder and urban man). Man as a consumer of non-renewable resources (industrial man). History - implications of population growth. Man as a destroyer of ecosystems. Man as a conservator of ecosystems?

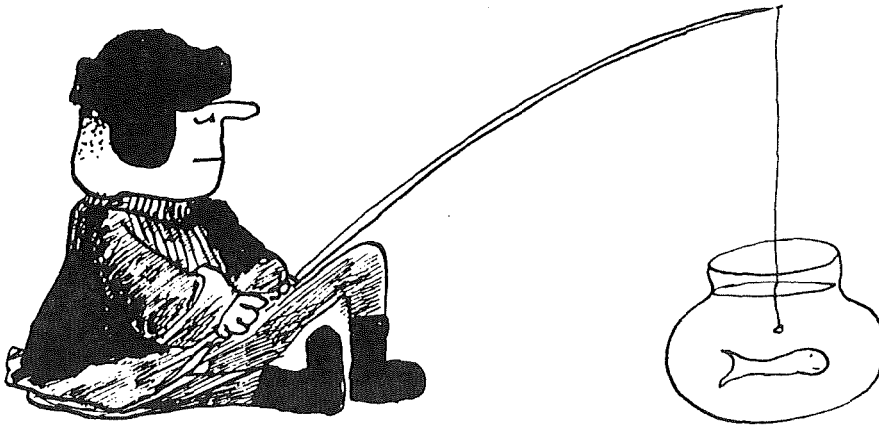
ORGANISATION

Familiarity with local society. Functions of society (provision of food, shelter, protection etc). Division of labour. Influence of environmental factors on social structure and organisation. Historical and geographical view of variations in social organisation. Understanding of organisation of modern society. The process of urbanisation. The role of laws and customs in present society. Planning and decision-making. Political issues. The role of the individual in a variety of social groups.



Urban aspects: Study of local city structure. Local planning - needs of urban population. Local cultural tradition. Urbanisation in the local context. Areas of social deprivation. Social services. Role of the individual in a particular community.

RESOURCE USE



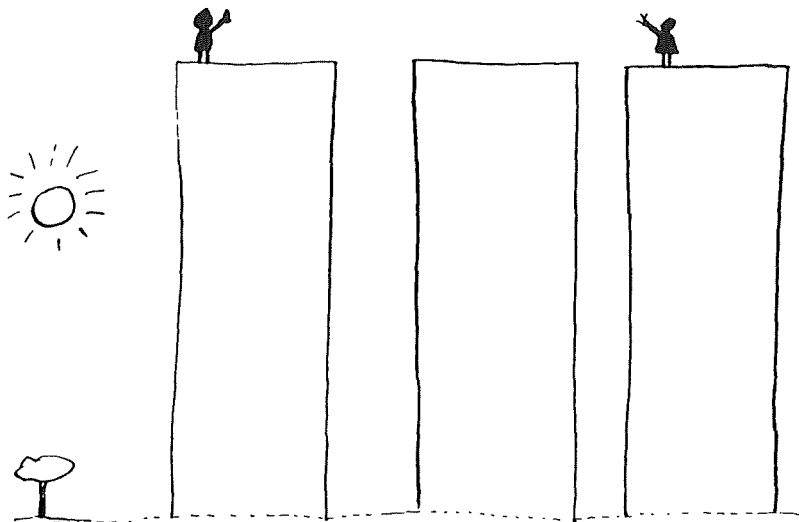
Recognition of major resources used by man. Unequal distribution of resources. Distinction between renewable and non-renewable resources. Historical and geographical variation in resource consumption. Finite nature of earth's resources. Impact of technology and population growth on resource utilisation. Network

of distribution of resources. Ecological implications of resource extraction and utilisation. Depletion and wise use of resources and their effects on life-style and aspirations. Awareness of conflicts in resource planning (eg maximum agricultural output = minimum biological diversity and stability).

Urban aspects: Sources of main resources used locally. Problems of resource distribution in local urban areas. Investigation of diversity of resources consumed by city.

THE BUILT ENVIRONMENT

Early investigation of locality. Understanding of distribution and functions of local buildings. Knowledge of historical growth of own urban area. Understanding of sources, properties and uses of building materials. Environmental conditions as affecting particular settlement pattern. Understanding of structure of local community. Location of services, zonation and planning. Effect of



evolution of transport and communication on changing patterns of settlement. Analysis of urban change. Introduction to problems of urban living. Aesthetic aspects of the built environment. Population pressures on local urban area. Problems and opportunities of urban dereliction and renewal.

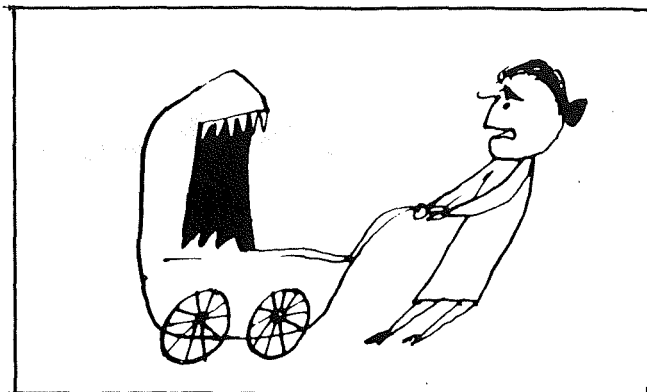
These cognitive objectives outlined above are by no means exhaustive, and it would be apparent that they are drawn from a number of the traditional subject disciplines. The implications of this for either the creation of a separate curriculum place for environmental studies or for co-ordination of activity between several subject areas, will be discussed in a later section. There is no suggestion that the list given is exhaustive or that its emphasis would appeal to all teachers or curriculum groups. It is intended to serve merely as a basis for discussion.

THE LATER YEARS

The previous section deals with some of the possible contents of an environmental course in the first 10 or 11 years of a student's school career. There is, however, no suggestion that environmental education can stop at the end of this stage; indeed, it is essential that it should continue. Following this period of acquisition of information, and indeed perhaps within the later stages of that period itself, teachers should be looking for an integration of many of the earlier ideas to help in the formulation of the more sophisticated concepts which we hope to find in the adult population. By the time a student reaches the age of 16 or so, having undergone a long and carefully planned programme of environmental education, teachers should be hoping for the emergence of attitudes or a formulation of what could be called an environmental ethic. Formulation of such an ethic depends, in fact, on the integration of information from sources much wider than environmental education itself. All aspects of education have their part to play. Thus, parallel to the more environmentally biased material, religious education and social studies, health education and mathematics, physics and chemistry, history, geography, languages and out-door pursuits should all be contributing knowledge in the course of the student's development, which will eventually be helpful in the adoption of a moral attitude towards man and the environment. In order to be effective in environmental matters the student will also need to be able to use many of the skills mentioned earlier to a very high degree of efficiency. A few examples will serve to demonstrate the need for integration.

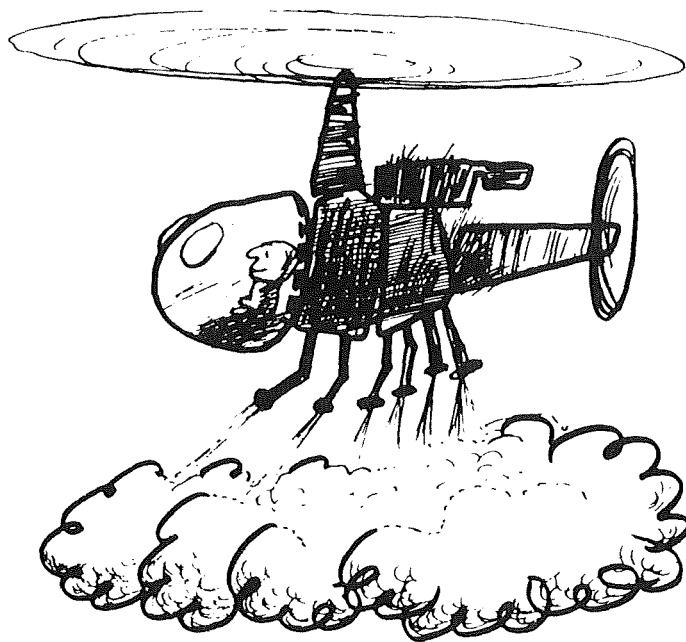
Population

World population growth may be considered as one of the most severe of the current environmental pressures. In order for a student to be able to accept any personal responsibility for population regulation, it will be necessary for that person to understand the finite nature of resources: the history of population growth; the techniques of family planning; the religious and other cultural barriers to population control; present patterns of population growth; the advantages to be derived from population stability both at the family and at the national and world levels; lastly, and most important, the initial disadvantages which would arise from population control. For example, the radically altered age structure of the world population and consequently limited production capacity.



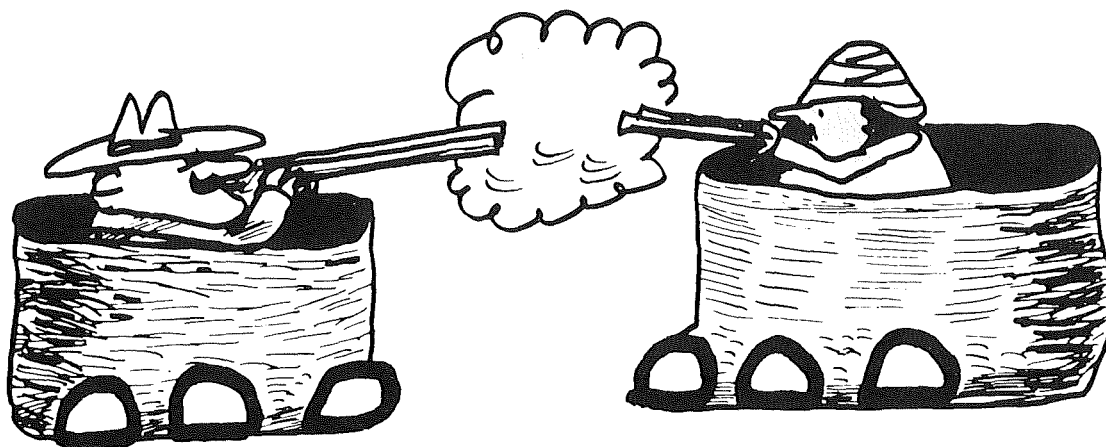
Pollution

In order to make an intelligent approach to the problems of pollution, students will need to understand the significance of our natural resources and the susceptibility of ecosystems to interruption. They will need to understand the broad outlines of many industrial processes and the production economics involved. Other factors to be studied will be the causes of pollution, experimental measurement of pollutants in the environment, the social cost of pollution, and also of pollution control (for example, in some developing countries the agricultural and public health consequences of the banning of pollutant insecticides may be as serious as pollution arising from their use).



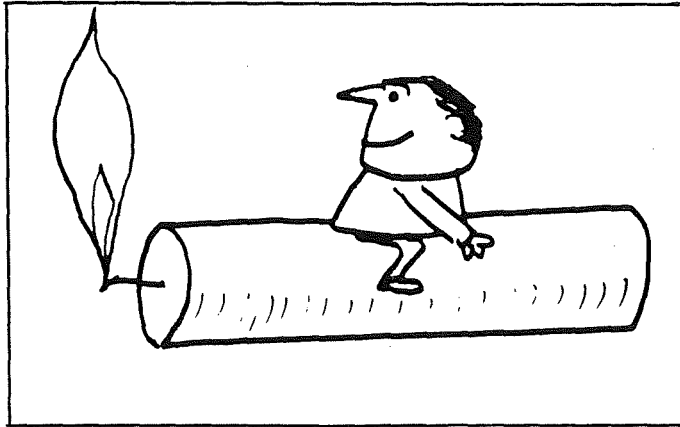
Wildlife conservation

It is easy to arouse public sympathy for wildlife conservation, but an understanding of the issues involved is an entirely different matter. It requires an understanding not only of the ecosystems themselves, but also of the effect of human pressure on natural habitats. Ideally the individual should understand that ecosystems are dynamic and not static, and there is a great need to be selective in the matters studied. The ultimate objective should be to encourage the individual to participate in conservation activity and for this there are a large number of basic skills which will need to be acquired including measurement and survey, monitoring and the more practical skills of landscape maintenance, tree planting etc.



Energy conservation

Here again formulation of a balanced viewpoint will depend upon knowledge drawn from a variety of disciplines including the following: limitation of natural resources; variety of forms of energy; energy conversion and transmission; the economics of various energy sources; comparative efficiency in the present decade of renewable and non-renewable energy sources; wastage; methods of conservation at international, national, local and individual levels; implications of energy conservation policy for building design, transport development, standards of living etc; inequitable distribution of fossil fuels; unequal per capita consumption of energy on a worldwide basis.



CHAPTER II

TEACHING, TRAINING AND CURRICULUM DEVELOPMENT

1. TEACHING

Nothing could be easier than to introduce the occasional environmental topic into the everyday teaching routine in schools. However, the introduction into the curriculum of a carefully planned programme of environmental education is a totally different matter raising many different problems. The content of any such course, as we have seen, cuts across traditional subject barriers and immediately raises the problem of who is to teach the new material. Those having legitimate claims on certain aspects of the course would include teachers of history, geography, the sciences, crafts, religious education and languages. Moreover, the body of knowledge itself is not static but is changing and expanding faster than the subject-matter of any of the traditional disciplines except, perhaps, for the sciences. There are also great difficulties in curriculum co-ordination and the production of a logically planned development of knowledge and capabilities within the individual child. Finally, the urban situation itself may raise barriers which have to be overcome.

However, although there may be problems, environmental education enjoys certain advantages over all traditional curriculum subjects. There is an increasing acceptance of the fact that as much as possible of the information passed on to children through our schools should be seen as of some relevance to their own lives. In no subject is it easier to demonstrate this relevance than in environmental studies, much of which can actually be based in the student's own home locality. It is equally easy for students to appreciate the significance of the rather wider ranging, more abstract aspects of the environmental curriculum. There is, therefore, a much better prospect of motivating pupils if they are engaged in environmental studies, particularly in the case of older students with well-developed social consciences and a clear awareness of the inadequacies of present-day urban society.

One subject or many?

Although the Committee for the Conservation of Nature and Natural Resources of the Council of Europe has reaffirmed its belief that environmental education represents an approach to the whole curriculum rather than an individual subject, it remains a fact that in many schools it does exist as a subject in its own right. It is necessary, therefore, to briefly consider the arguments in favour of the two alternative approaches.

There is no doubt that the single subject approach is, in theory, easier to organise. It allows the creation of a course which produces a logical progression both in the development of skills and in the transmission of information. It also seems more appropriate as the subject-matter so frequently crosses traditional subject boundaries. However, when viewed in the light of the whole curriculum, the weaknesses of the single subject approach become apparent. The very multidisciplinary nature of the subject matter makes relationships with other curriculum subjects within any school extremely difficult, and creates serious co-ordination problems. Moreover, the majority of the teachers of our older age groups are highly trained in specific subject areas and may lack the expertise to teach the broad environmental approach.

The environmental approach to the whole curriculum offers certain advantages. It is much easier to introduce environmental emphasis into existing subject areas than to attempt to fit a new subject into an already overcrowded timetable. It means that each teacher is able to bring his own particular expertise to bear on some aspects of the subject. The relevance of environmental matters to other aspects of the subject curriculum can be clearly demonstrated. The main difficulties with this approach are that it can lead to endless repetition of the same subject matter in a series of separate disciplines. It is more difficult to develop a particular theory logically within a single subject area, and problems of co-ordination can be enormous.

Both approaches have, therefore, much to recommend them. It is probably easier to teach through the single subject approach with younger children up to the age of 10 to 11 before their teaching is firmly separated into subject disciplines. More suprisingly perhaps, the same approach can work very well at the other end of the age range with peoples of 16 to 19 years of age. By then specialisation has been carried almost to its extreme, and the main work of the student may be concentrated in perhaps two or three subject areas. At this stage environmental education can form a very important part of their minority time general studies work.

CO-ORDINATION

Whatever the approach preferred, it is important that each organisation responsible for curriculum control, whether it be a school, a local authority, or a national agency, should make a very clear decision on policy. The uncontrolled and haphazard introduction of environmental subject matter into the curriculum can be counterproductive. It can result in certain topics being taught so frequently at different ages and in different subject disciplines that students will become totally bored and react strongly against any important environmental concepts embodied in these topics. Close co-ordination between several teachers will always remain a prerequisite of a successful environmental education programme.

Let us consider briefly the implications of this statement for students of different ages, and examine some of the alternative forms of co-ordination which are available.

Younger children

With children up to the age of about 11, it is unlikely that their curriculum will be firmly divided into separate subject disciplines. Here the single subject approach to environmental education is perfectly practicable. However, co-ordination is still important. The programme for the full 5 or 6 years must be carefully planned. If this is not done then from the age of 5 or 6 up to 11, each child could be asked each year to study the same street in the same city in the same fashion as in previous years, with no increasing sophistication in the level of information transmitted, no demand for greater development of particular skills and thus, no real progress.

Older students

At some stage between the ages of 11 and 13 a child's school curriculum is normally split into separate subject disciplines. It is at this stage that co-ordination of environmental education becomes important between

teachers of the same age group. This is equally true whether or not environmental education figures as a separate subject on the curriculum. The degree of co-operation between teachers varies widely, and a few examples are given below:

Exchange of information

This is absolutely the minimum level of co-operation necessary to allow any co-ordination of teaching. Each department should publish a detailed syllabus including all topics with an environmental emphasis, and this should be available to all other departments with a school or local authority organisation,

Co-ordinated teaching

This approach requires detailed consultation between staff responsible for the different subject disciplines. In an ideal situation it would also cover the complete age range of formal education. At the most primitive level these discussions would be aimed entirely at avoiding overlap, and the factual content of each main topic would be carefully divided between the subject discipline. However, it is desirable that co-ordination should be further developed to a stage which would allow the logical presentation of ideas throughout a child's development, thus facilitating concept formation. This is perhaps the most desirable approach to environmental education and one which is seen too infrequently. It makes excellent use of each teacher's individual skills, but it does demand a great deal of hard work outside the normal classroom situation. The interdisciplinary nature of so many of the topics means that several separate disciplines may claim the right to teach them, and teachers wishing to develop a fully co-ordinated programme will need to approach discussions with a completely open mind and be ready to listen carefully to what their colleagues have to say.

Team teaching

Team teaching represents perhaps the ultimate condition of co-ordination between subjects. It represents perhaps one of the most exciting developments in teaching in recent years. However, it is also probably the most difficult form of teaching to carry out effectively. On the whole teachers are by nature and training solo operators. The whole system has been built on the basis of one teacher being responsible for a single group of children of varying size for a variable length of time. Team teaching completely reverses this trend and asks a number of teachers to work in close co-operation with each other in the teaching of a large group of children. The attractions of team teaching are readily apparent. It should bring much greater flexibility to the teaching process. For example, at one stage in the day each teacher may be dealing with a group of 25 children, whereas a little while later one teacher may be showing a film or talking to a very large group while the others concentrate on specialist activities with smaller groups of up to 5 pupils. In a school where work is based largely on individual topics there are further advantages for each child has the possibility of pursuing his own topic through creative writing, craft, science, history and geography, and always having access to a teacher with the particular skills that he requires. This type of approach is particularly popular with younger children, but in some schools there have been serious attempts to break down the subject barriers completely for children up to the age of 13 or 14 years. In these cases each year's work is centred around a number of main themes or topics. In this situation it is easy to see the attraction of team teaching.

In studying such topics as population, energy or natural resources, children would benefit greatly from constant and immediate access to teachers of history, geography, science, mathematics and languages, as well as having immediate access to the specialised materials and apparatus used in all these subject areas.

However, although it is attractive, team teaching abounds with problems. To be successful it probably requires staff of very high calibre. It is also essential to introduce very careful monitoring of the progress of individuals since in the team situation it is easy for students who have no great desire to work to be overlooked and make very little progress. Very detailed course planning is essential to make sure that each student receives a carefully balanced experience, and none of the major topic areas are overlooked completely. An adequate period of discussion and preparation is essential before any form of team teaching is introduced.

ENVIRONMENTAL EDUCATION AND RANGE OF ABILITY

Full ability range

It will be apparent from everything which has been said so far that environmental awareness is a desirable characteristic of every member of the population. It follows, therefore, that environmental teaching must be available to every pupil in school regardless of age and ability. In some areas in recent years there has been a tendency to put together courses in environmental studies for pupils of less than average ability. The motives for this are easy to understand. A general course of environmental studies involving a great deal of practical work and dealing with more generalised topics can certainly be an important factor in motivating the less able or less willing pupil, particularly if the content can be seen to be of immediate relevance to each pupil. In many cases such work is seen as a real alternative for this ability group to the more academic aspects of history, geography or the sciences. Although it may be understandable however, this trend must be strongly deplored. Creation of courses of this kind for the less able student can lead to neglect of vitally important environmental topics in the education of the more academic pupil. This must be regarded as unsound educational practice. The whole spectrum of environmental objectives as outlined in Chapter I must form a part of the education of every child. Within this basic framework the materials presented must be carefully adapted to suit each pupil's age and ability so that all will be introduced to the most important concepts, while the most able pupils will pursue many in much greater depth.

Mixed ability teaching

Another interesting development in some areas in recent years has been the development of mixed ability teaching with children at the secondary level of education. Under this system each teaching group is composed of children carefully selected to cover the full range of ability, or at least a much wider range than normally found in many secondary schools. This approach is firmly founded on the very desirable ideal of providing true equality of educational opportunity for all our children and, therefore, has much to commend it. In city schools in particular it can do much to break down the economic, social and cultural barriers that so effectively divide our population. In the context of this handbook it certainly helps to ensure that all children receive a balanced environmental course of study.

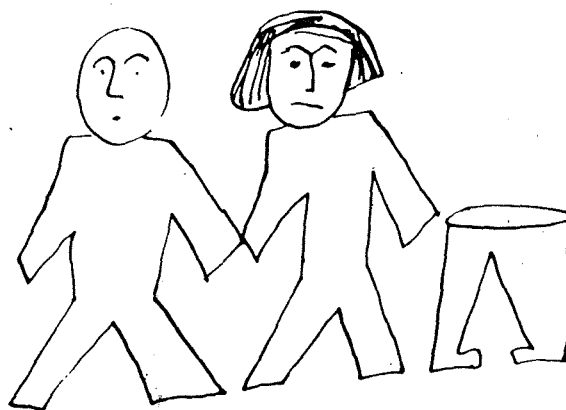
However, it is probably fair to say that the majority of experiments in mixed ability teaching instituted to date have failed. The reason for this is the very heavy demand which the system places on the class teacher. Mixed ability teaching is difficult. If the teacher responds by dividing his class into groups according to their ability then the whole point of the exercise is lost. If he tries to restrict himself to full class teaching then some of the pupils will be struggling while others are bored. Perhaps the only solution is for the majority of work to be carried out in small groups, each of mixed ability. This requires great care in the planning of assignments in order that every member of the group may be able to contribute to its work in some way, while each will be able to pursue the subject to a level compatible with his or her own ability. Many of the teaching techniques outlined a little later in this Chapter are eminently adaptable to the mixed ability situation.

ORGANISATION OF COURSE CONTENT

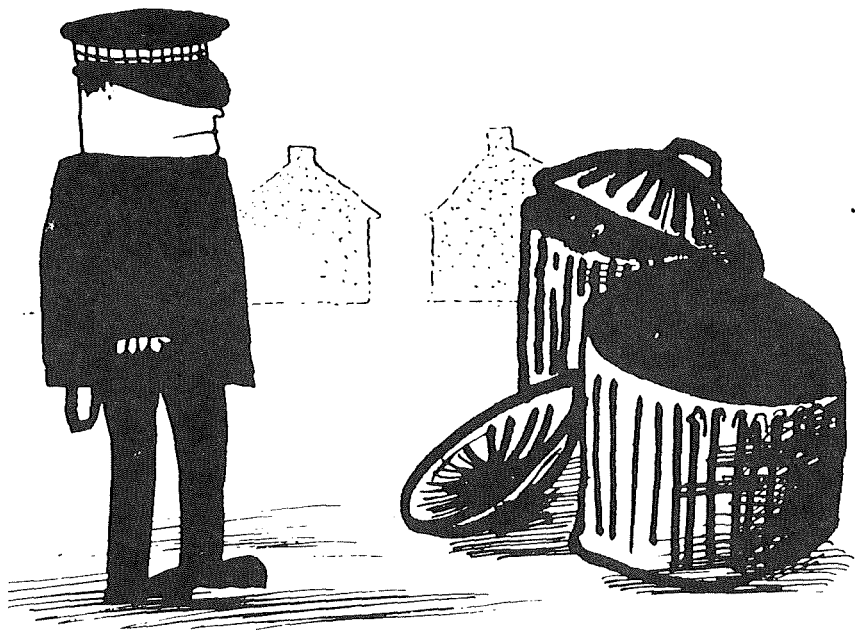
Much has already been said about the need to co-ordinate the work of teachers of different age ranges or subject disciplines. Within that framework each curriculum control group or individual teacher will need to make decisions as to the organisation of the course content. Even where the curriculum is centrally determined, it must leave the individual school or teacher room to manoeuvre in order to deal adequately with issues which are of particular relevance to their own school or locality. There are several criteria which can be used to help in deciding at what level each part of an environmental programme should be introduced.

1. Building bricks

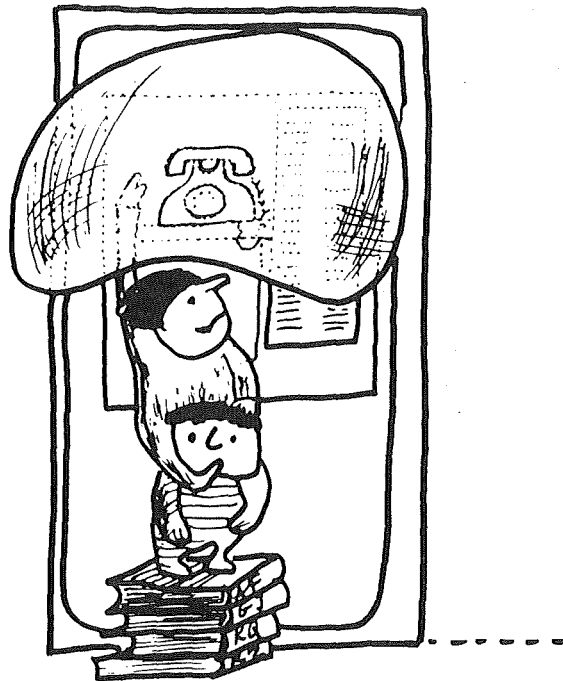
If we accept current theories on child development and proceed by the golden rules of good teaching, namely to proceed from the known to the unknown, from the simple to the complex, and from the concrete to the abstract then each broad subject area will almost certainly be considered several times during the child's school career. For example, it is easy to visualise that a small stretch of a city street could be studied four or five times by an individual child in his whole school career. At an early age of 6 to 8 years his work on the street could be simple observation work, looking at the make-up of the street, the number of houses, shops and other buildings there and, perhaps, some very simple historic background. This could lead either to creative writing or to art and craft work. Later on, perhaps between the ages of 9 and 12, a child could return and carry out basic surveys on the street, making simple maps and plans to show location and types of shops, and carrying out the simpler traffic surveys.



From concrete to abstract



Simple
observation work



Detailed
investigation

Between 13 and 16 years of age much more detailed investigation of transport routes and needs could be undertaken, together with enquiries into the type of people who live in, work in, or visit the street in question. This could be followed by detailed enquiries into the needs of the residents, the social services they use and resources which they consume, and whether the services are adequate. Particularly relevant may be a review of the recreation needs of the teenage population of the area, perhaps with recommendations for its improvement.

Towards the top of the age range and perhaps up to the age of 18 years, groups could become involved in an investigation of planning issues affecting the area and possibly become actively involved in the debate of planning issues or on conservation work in historic buildings. They should

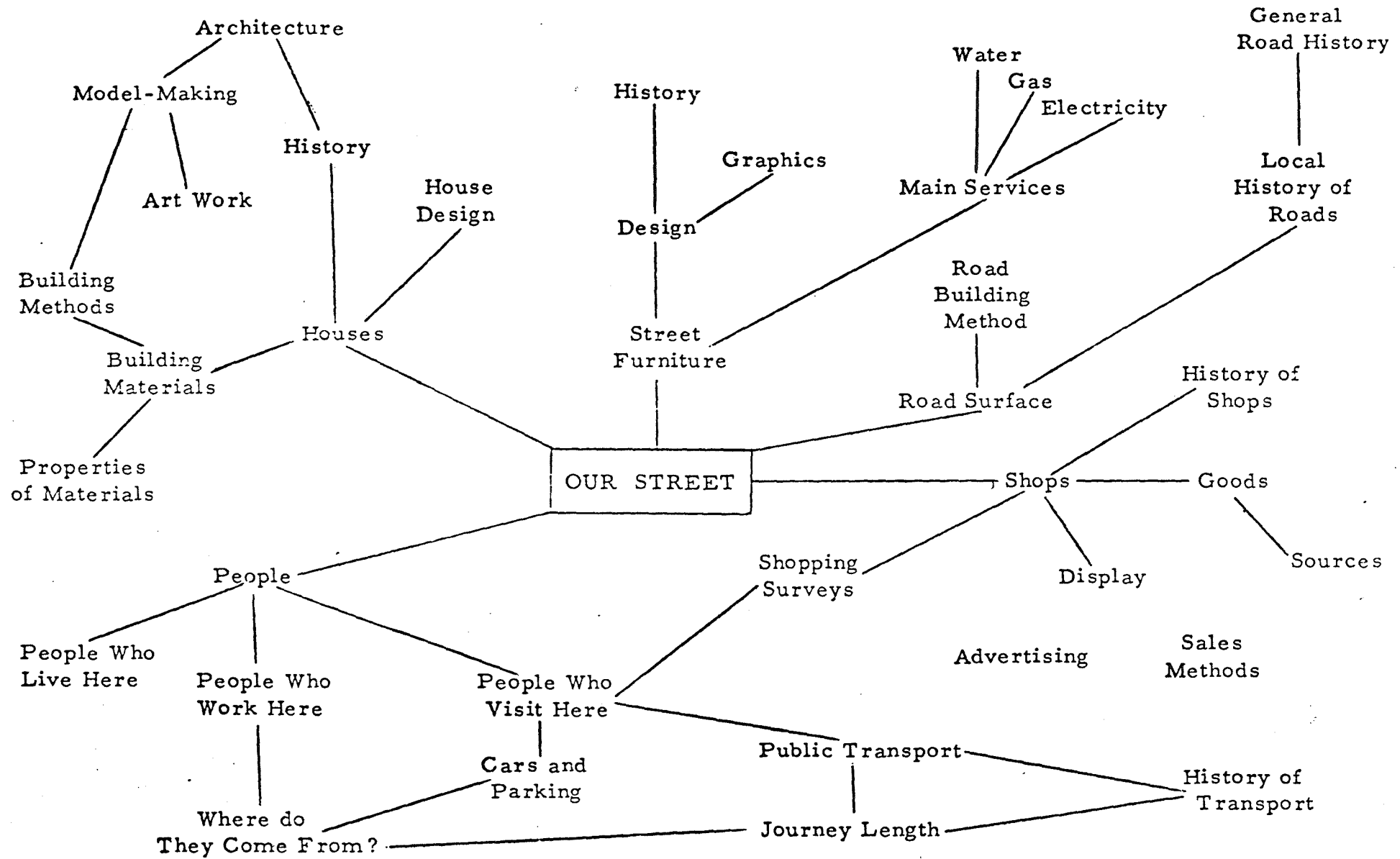
be increasingly aware of aesthetic aspects of the environment and be able to propose measures for their improvement. This may lead to more practical work in restoration of derelict land or tree planting and so on. Finally, they may make a contribution to the community life of the area either by helping with nursery classes and recreational opportunities for the very young or by carrying out community tasks involving the older members of the local population. The same linear developmental approach can be taken to almost every aspect of an environmental syllabus.

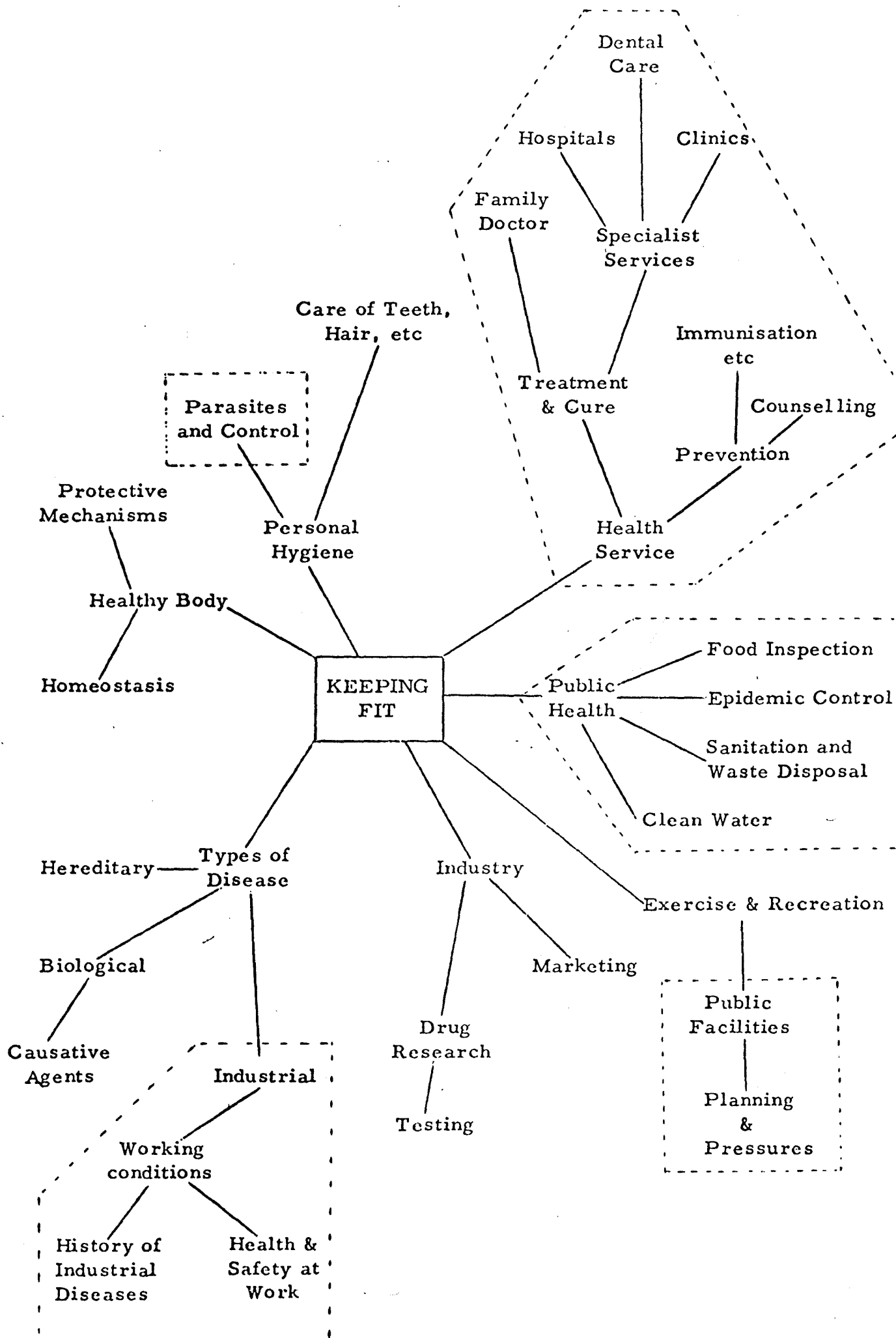
2. Concentric circles

While the linear approach outlined above is concerned with increasing depth of understanding, the concentric approach is concerned with increasing breadth of understanding. Thus, beginning with the "known" environment in which the child lives, studies will gradually widen to include the local community, the whole of the city and its suburbs, the region, the nation and, finally, global issues. Such an approach can easily be demonstrated by a topic such as energy where the child may first learn in the classroom something of the basic energy types and energy conversion and conservation, backing this with simple experimental work. He may then look at energy consumption in his own home and, indeed, comparisons could be made between different members of the same class. The next step will be consideration of energy production, distribution and use in the local community, then the city as a consumer of energy and, finally, energy sources, distribution and use on a national and worldwide basis.

3. Flow diagram

For teachers using any form of individual or group work, a single introductory lesson on a topic can result in several groups all pursuing very different but relevant lines of enquiry. In order to help them plan for this type of eventuality, many such teachers employ flow diagrams. These diagrams help to demonstrate the possibilities arising from a single topic. This is of great assistance in helping to plan logical work progressions and also to eliminate lines of enquiry which seem to be unproductive or which are likely to be covered elsewhere in the curriculum. Two examples follow to demonstrate the point:





Neither of the two examples above is fully developed. The first one is simply intended to demonstrate the diversity of the work which can arise from a study of a very small part of the local city environment. The second example shows how an initially unrelated theme can quickly spread into the field of urban environmental education, all those areas within the broken lines being valid as part of an environmental programme for city schools.

4. Checking progress

When teaching to a formal detailed syllabus, making checks on progress is straightforward. However, where a more informal approach to the educational content of the programme is adopted, for example, when using topic-centred work, it is necessary to establish a mechanism of progress checks in order to be able to record those areas of knowledge which have been covered and also the basic skills which have been developed. This check list should be as comprehensive as possible, and is particularly important at the stage where students transfer from primary to secondary education. There is increasing co-ordination between these two educational levels, and where specific hand-over points have been agreed, a detailed check list is the only way of ensuring that these hand-over points are reached.

CLASS ORGANISATION

To achieve maximum success a large proportion of the environmental curriculum should provide opportunities for involving the children in educational activities as an alternative to the formal class teaching situation. Active educational methods encourage children to use their own initiative to formulate experiments and surveys, to record accurately, to handle data intelligently, and to be critical of their own work. Active methods require a variety of approaches to class organisation. There are three basic categories:

Individual project

With this approach each child selects an independent and individual project within a broad topic area. Its main advantage is that it develops the quality of self-reliance to the highest degree. The child must work without the support of members of his peer group. There are disadvantages. The individual topic approach places the heaviest possible demand on the teacher's time. In the absence of adequate supervision particularly in the case of younger or less able children, individual projects can consist simply of reproduction of second-hand information with a disproportionate amount of time being devoted to illustration and with little or no critical thought being given to the content of the project report. Moreover, while working on an individual project the child is isolated from the rest of the group and lacks opportunity for discussion. For older children who are highly motivated and of reasonable standards of ability, the individual project can present a real challenge and will often produce results of an extraordinarily high standard.

Group work

Here the class is broken into a number of small groups and each group undertakes a specific assignment. As a general rule this is the most productive way of working. This allows and encourages group discussions which will often produce a much clearer definition of objectives by the group itself.



Group discussion about soil collected in the street, the park, etc.

It stimulates both competition and co-operation and it allows each member to make a contribution to the final project report in a way which is best adapted to his own particular abilities.

Group work also makes more effective use of the teacher's time.

Class assignment :

Where all the groups in a class are asked to undertake the same project, results are not usually as satisfactory as where each group is given individual subject for study. However, there are occasions when the full class assignment approach is justified. Criteria on which the class assignment approach may be selected include the following:

1. The project involves study of a large physical area.
2. Large quantities are required to make the project results statistically valid.
3. Where the same type of enquiry by all pupils in a class is likely to provide widely differing results, eg family size, distance from school, size of home, energy consumption etc.

RESOURCE BASED LEARNING

The introduction of individual or group project work into the classroom reduces the significance of the class text book and creates demands for different types of reference material. It is not surprising therefore that the spread of informal educational methods has been paralleled by the development of the school resource centre. Children visit such a centre individually in order to search out background material for topics under discussion. There is frequently a permanent teacher or qualified resource librarian on hand to help the children with their enquiries. There are almost as many types of resource centres as there are schools which use them, but basically the centre would include all the school library materials together with a great deal of additional information. This may take the form of magazines, newspaper cuttings, special studies written by previous student groups, reference sets of material for identification purposes, maps, archives, films, film strips, slide sets and film loops. Some of the more sophisticated centres even include sound archives, gramophone records and video tape programmes. The success of the centre depends on the well developed and cross indexed information retrieval service. Very often children can add to and improve the resource centre through their own activities by ensuring that all the material they have acquired in researching a particular topic is added to the library and carefully filed and indexed.

ACTIVE EDUCATIONAL METHODS

One important aspect of environmental education is the diversity of active educational methods which can be employed to lead students to an understanding of the main issues. The term active educational methods is not very precise. It may be taken to include those techniques which would ensure some degree of participation by individual students. It would exclude, for example, a normal class lecture situation in which the teacher acts as the transmitter of information and the student is a passive receptor.

Contact with experts

This is one very valuable method of improving students' insight into many environmental issues. Every locality contains a large number of people capable of making an important contribution. These may include Planning Officers responsible for housing and transport policy, directors and staff from local industries, public health inspectors and officers responsible for pollution control, members of local amenity groups, conservation societies, etc. Many of these will with a little persuasion be willing to meet children. Some will be prepared to come into the classroom to give a short talk followed by detailed discussion of the more important issues. With classes in the middle and upper age bands children should be encouraged to introduce the speaker, to act as chairman, to formulate questions designed to stimulate discussion and give the vote of thanks. Other possible speakers may be nervous at the prospect of facing a full class of thirty or more students, but prove perfectly willing to meet a smaller group. In such cases the interview should be employed. A small number of students, probably two or three should be briefed to prepare an interview, working beforehand on the questions to be asked. They then should carry out the interview and record it. Recording techniques will vary. Some people who have considerable experience of public speaking and debate have no objection to the use of tape recorders; others become very self-conscious. In the latter case the interviewers must rely on note taking and here a shorthand writer is a great advantage. Having completed the interview it will be the responsibility of the small group to report back to the whole class.



Children meeting with local amenity groups at an information market
(part of an integrated environmental education programme in primary schools)

Laboratory practical

"Traditional" laboratory work has a vital role to play in the development of environmental awareness. There are two broad categories of experimental work which have particular significance.

Firstly there are those experiments which serve as foundation stones on which an understanding of the more complex ecological and environmental issues may be built. There are many examples of this type of experiment, eg conditions necessary for photosynthesis, seed germination, healthy plant growth, stimuli and responses, energy sources and energy conversion, chemical analysis of liquids and solids etc. The second category of laboratory experiment are of those which involve direct investigation of the factors of major environmental importance. Under controlled laboratory conditions, students can investigate the physical properties of building materials used in their own locality. They can compare the performance of various materials used for house insulation. They can take continuous samples and monitor for pollutants, they can simulate industrial production techniques, water purification etc. Not only is laboratory practical an important aspect of environmental study but the introduction of an environmental emphasis into the practical work can actually increase the value of the work for each pupil. One of the problems with many laboratory experiments is that they are merely a recapitulation of experiments carried out many years before (classic gas preparations etc). The procedure is already well established and the results are not usually in any doubt. In fact the true Heuristic approach to investigation is almost totally absent. This is not true of laboratory practical related to local environmental issues. It is quite often necessary for students to develop their own techniques, establish controls procedures etc. Moreover, the results cannot be discovered by looking in any classic textbook. In this way the value of the practical work itself is greatly increased.

Local study

Field work in a rural setting has long been accepted as an important part of courses in biology and geography. One remarkable aspect of the recent rapid growth in urban environmental education has been the development of field work in a city setting (the term "street work" coined by Colin Ward and Antony Fyson of the Town and Country Planning Association describes this very aptly). In many areas such street work begins very early in a child's school career. With younger children the teacher is concerned with helping them to sense their surroundings, to become more aware. They are helped to develop a sense of location and to see interesting shapes and patterns in their locality. Responses to these sensory stimulations sought by teachers of this age level are usually simple and at an emotional rather than a logical level. Do the children think it is clean or dirty? Quiet or noisy? Interesting or boring? Pretty or ugly? Which bits of their locality do they like best and why? Classroom work based on these experiences is usually creative - painting and drawing, poetry, prose etc.

During the second half of their primary education the children are required to make more accurate observations of their surroundings. They may draw maps of their locality, analyse the services supplied by local shops and stores. Study in greater detail the architecture of individual buildings and streets. Enquiry into the history of their surroundings and begin to develop an awareness of some of the problems of urban living.

At secondary level local study becomes more detailed and complex. This increasing sophistication is closely related to;

- a. the mathematical competence of the child and
- b. his or her ability to handle abstract ideas.

For example, many younger children are perfectly competent to carry out traffic surveys and present results graphically to demonstrate the numbers of cars and lorries heading south along the High Street between 9 am and 10 am.

At secondary level students should be able to survey traffic flow over a much wider area and integrate the information from a variety of surveys, to isolate any traffic bottlenecks or trouble spots. They should then attempt to formulate policy to overcome these difficulties. As a final step some of them may be capable of discussing these ideas with the local authorities officers responsible for traffic planning.

Indeed, participation in planning may be seen as one of the possible climax activities of local study. Teachers wishing to involve their students in this type of work should make sure that they are well equipped with background information, that they are capable of accurate observations and logical evaluation of results; that they can participate fluently in discussion. Many planning departments have recently become extremely sympathetic to approaches from schools as one step towards increased public participation in planning matters, a trend which is becoming increasingly fashionable and is to be encouraged.

Perhaps one of the most valuable aspects of the study of planning issues is that it can often lead to a confrontation between pure idealism and realism. Many students between the ages of 14 and 20 are extremely

idealistic and this is as it should be. With considerably less justification many schools are also totally idealistic places having isolated themselves from the realities of the outside world. Presenting children with planning conflicts illustrates very clearly that ideal solutions are possible only when ideal resources are available. They will find themselves in the role of the local authorities attempting to meet escalating demands from inadequate resources. They will perhaps learn something of the difficulties in deciding between new homes and new hospitals; new roads and new parks and so on.

The teacher must also be prepared to become involved in political debate. There is no way in which this can be avoided as many local planning issues are unfortunately decided on purely political grounds. In some countries it has been traditional that the school teacher should not become involved in political debate. There has always been a fear that this could lead to indoctrination of pupils in a particular political belief. However, one feature of the past decade has been the rapid escalation of the amount of political propaganda directed specifically at older children from many organisations and sources outside the school. It is therefore probably vital that every school should enter the political arena in a balanced and unemotional way in order to counteract some of the more hysterical outpourings. Moreover, if environmental matters are to receive the attention they demand that the environment must become a major political issue.

Art, craft and design

The streets around the school provide many starting points for art and craftwork. Younger pupils often use drawing, painting and model-making as a means of recording their observations and indeed their emotional response to that which they see. Continuous art and craft education during the school career can be vital in developing within our pupils a sense of good design and aesthetic awareness of their urban surroundings. In addition, heavy craft can help children to understand the functioning of many major industries. The subject of aesthetic awareness is pursued in greater depth in the section devoted to case studies so little more need be said about it here.

Historical re-enactment

This type of activity is increasing in popularity as teachers attempt to help their students to create closer links with social and cultural activities from the past. It is used at all levels of sophistication. At its simplest level with young children such an experience may consist of no more than wearing period clothes and re-enacting some aspect of daily life from the same period. For example, children wearing 19th century clothes may experience a typical classroom lesson of that time. Older, more competent children may research some incident from the past and attempt to recreate it in some detail. Incidents depicted in this way have included local battles, traditional festivals of a particular city and social life from past ages. In some cases they have worn the dress and undertaken the tasks of different members of the household from the 19th century, for example, cook and kitchen maid, housemaid and gardener, all performing a

variety of tasks while members of the group acted the part of members of the family engaged in embroidery, music-making etc. More ambitious activities include for example historic workshops. Here children engage in a variety of crafts and other activities from a particular period of history. For example, they may undertake spinning and weaving by hand using primitive methods, dyeing fabrics with natural dyes, digging clay and making pots and firing them in the manner used in perhaps the Roman period. They may build shelters of a particular type or perhaps make tools and weapons. Such activities can never of course present an accurate reconstruction of life in the past. They can never give children realistic impressions of life at a particular period. The children in question have the 20th century upbringing and environment. They think in a 20th century fashion.

The experience is nevertheless of great value, particularly if children can perhaps make pots and knives or fabrics by techniques used several hundred years ago. They may then compare and contrast these activities with 20th century industry through visits to potteries, textile factories and foundaries. There is still much scope for experiment in this particular field.

Games and simulations

The element of role play to be found in historical re-enactment also occurs in the use of games and simulations as tools in environmental education. There will always be a number of issues which are too far-reaching and complex to be easily studied in one area of a particular city. These may include such complex problems as the siting of airports or oil terminals, plans for increasing water supply, the routing of major new road schemes through town and country, the planning of a new town or redevelopment of a city centre, improvements to public transport in towns. These and many more issues are well adapted to games and simulations. In such activities, individual or small groups of children are asked to consider the problem from a particular viewpoint. The issue is then argued out in a way intended to simulate public enquiry and often the matter is decided by a vote. Such an activity can give children a clear insight into the conflicts innate in any planning situation and the difficulty of reconciling all viewpoints or reaching a mutually agreeable compromise. Games and simulations exist covering a very large number of topics and a large age range. More is said on the subject under the heading of Case Studies.

Presentations

The quality of work produced by children undertaking individual or group projects can often be greatly improved by insisting on some formal presentation at the end of the project. This can often take the form of an exhibition and if this can be put on display for a wider audience, the class involved can gain great benefit. Some exhibitions may merely display information for the interest of the local residents. For example, "the history of our town" or "local crafts and industry". When a class feels strongly about a particular issue exhibitions can even become propagandist. (For example, where a particularly attractive street is threatened with demolition to make way for featureless modern architecture.) Children can

be asked to go out with cameras and create a photographic exhibition, highlighting the most important architectural points of that particular street and urging the local authority to consider improvement as an alternative to demolition and renewal. This idea is capable of almost infinite extension with children participating in the creation of programmes for local radio or writing letters to the local press etc.

Practical conservation work

If one of the teacher's objectives is to encourage pupils to become active participants in the environmental field there can be few things more rewarding than to see a whole class or part of a class engaged in practical conservation work in their own urban area. Such activity is also very rewarding for the children themselves and for the local community. Almost any city offers endless opportunity for this valuable type of activity. Younger children may be engaged simply in clearing litter or removing accumulated rubbish from demolition sites. Others may raise funds to buy trees and shrubs for planting in the city centre or their own locality. Others may clear ponds and streams that have become blocked with domestic refuse. With older students much more sophisticated work is possible. They can participate in the cleaning and restoration of historic buildings of architectural or industrial importance. They can turn wasteland into playgrounds for city children. They can undertake the landscaping and planting of derelict areas or participate in the creation of ecological parks in city centres. If children come to accept this form of activity as a normal part of their education, they are more likely to remain involved, interested members of the community on leaving their schools.



Clearing litter

THE ROLE OF THE TEACHER

It is immediately apparent that any teacher wishing to use the techniques outlined above must in the course of his normal teaching day play a wide variety of roles. The traditional role of the teacher does not disappear. There will still be times when it is necessary for him to stand at the front of the class and transmit a body of information to a hopefully receptive group of children, using the best teaching aids which he knows to be available for this particular purpose. However, this simple didactic role is no longer enough.

The teacher must learn to be a good chairman. Having encouraged children to debate a certain environmental issue, he must be careful not to dominate the discussion that ensues. He must control the activity firmly in order that all children may present their point of view. He must encourage the inarticulate and ensure that extroverts do not dominate the debate. However, he must not impose his own point of view on the whole assembly, but guide them to their own conclusion.

For long periods the teacher will need to act as guide and councillor to individual children or small groups. He must encourage them in their work and try to help them to plan their programme activities. He must be ready to prevent them from being too easily sidetracked and suggest techniques whereby they may obtain the information which they require. Children weak in particular skills will need special coaching while others may need to be given a great deal of background information before they can function efficiently. This approach is extremely time-consuming and can only succeed where discipline is firmly established, work carefully organised and a good class teacher relationship exists. The teacher will also be the main provider of resources, at least at the early stages of environmental investigation. To do this job efficiently it is necessary to plan often several weeks or months ahead. Where investigation of a particular topic is envisaged the teacher must ensure that background reference books are available, that there is an adequate stock of maps, identification sheets, guides, slides and tapes. He must obtain the basic equipment that will be required and should be familiar with all sources of information as far as possible. He should discuss with other local agencies, planning officers, libraries etc and national environmental organisations in order to ascertain what material help they are able to provide.

Finally, in many cases the teacher will need to play the role of devil's advocate. As most children are idealist it may well happen that in any environmental conflict they will all opt for one side of the argument; the teacher must then challenge their assumptions and state an opposing view with some care and conviction. Only in this way will the group learn to review evidence carefully and to back up their views wherever possible with strong factual evidence and arguments.

2. THE TRAINING OF TEACHERS

In recent years many teachers have become increasingly aware of our current environmental crisis and have readily accepted its significance in terms of their own subject teaching. However, they have been deterred from introducing environmental material into their curriculum by their own feeling of inadequacy. Successful environmental teaching requires not only access to a certain body of knowledge but also familiarity with a variety of skills. It is apparent that if environmental issues are to figure in the central core of every child's education then a major investment in teacher training will be essential. Moreover, this must not be restricted to the initial pre-service training period. In-service training must be available to a large number of practising teachers who wish to increase their competence in this subject area.

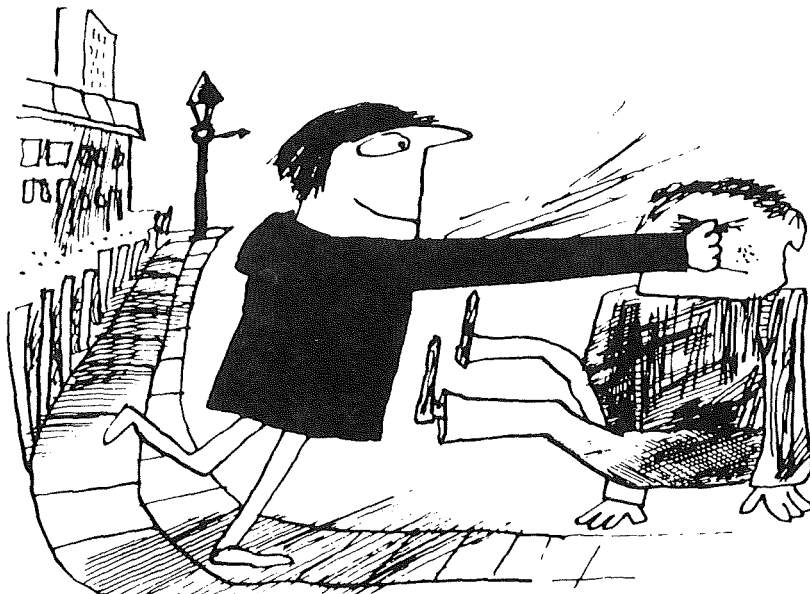
Pre-service training

Many training establishments now offer options in environmental studies for potential teachers. The number of such courses will increase in the future. What type of teachers should such courses aim to produce? The objectives outlined in Chapter I are as relevant to teacher-training as they are to formal classroom education.

In an ideal world, all students embarking upon training as teachers of environmental studies would have acquired much of the body of knowledge which was outlined in the section devoted to cognitive objectives. However, this ideal state would not be reached for many years, if ever, and in the meantime it is important to ensure that every training course includes a balanced body of knowledge. The depth to which each aspect be pursued will vary according to the type of course. For many years yet the majority of teachers of secondary level will be training as a specialist in a particular area. Where this is true, then knowledge of environmental aspects of their main subject must be deep and detailed but every effort should be made to give them a broad view of environmental aspects of other subject areas. Courses for teachers of primary and perhaps middle-level will have the great advantage of being able to adopt a multidisciplinary approach from the earliest stages.

Skills

In addition to those basic skills outlined in the heading "Objectives" there are certain specific teaching skills which must be developed. One important requirement of any course is that student-teachers must be actively involved for a great part of the time. Students must be given the opportunity not only to carry out their own practical field work in a wide variety of urban and rural settings, their teaching practice must be carefully planned and organised to ensure that they gain experience in project work, group work and street work with pupils of different ages. Each potential teacher must be prepared to express personal opinion on an issue, but this should not prevent him from being able to present a variety of viewpoints for discussion.



Every effort must be made to develop the disciplinary ability of the student. Many students who adhere to the environmental ethic are also committed to the ideal of fully participatory democracy and some will find it difficult to reconcile this belief with the need for stricter discipline. However, any city is a very dangerous place and strict discipline is essential during field work in order to ensure as far as possible the safety of the pupils in the teacher's care.

One aspect of the teacher's training which is often seriously neglected is administration and yet the successful teacher of urban environmental studies will require considerable administrative ability. He will require knowledge of the law as it affects children working outside the classroom. He will need to understand the mechanism of local government and to feel at home with administrators working within the local authority. He must be able to plan a complex programme of activities for a number of different groups of children and maintain adequate records to ensure that each group and indeed each child is making satisfactory progress. Another essential skill is the ability to organise and control the very wide variety of materials which will be incorporated in any adequate resource centre.

Perhaps the most difficult task of any teacher training course in environmental subjects is to attempt to heighten the sensitivity of the course members. For in environmental education, as in religious education, the attitudes and behaviour of the individual teacher can often be as important as the information which he attempts to transmit to his pupils. Ideally this sensitivity will extend to 3 main areas, namely conservation, the urban environment and the type of child being taught. Sensitivity to the environment and conservation implies that each teacher will have his highly developed environmental ethic. Moreover, this will not simply be a theoretical ethic but will be reflected in his daily actions. For example, many teachers of biology frequently express concern for conservation and yet are careless of life in their everyday teaching. Many of their lessons end with wastebins full of used plant and animal materials and very little effort is made to limit their use to a necessary minimum. It may be difficult for pupils to reconcile this behaviour with high-minded statements about the need to conserve resources.

Sensitivity to the urban environment can probably only be successfully developed by students who have been able to immerse themselves in it and to observe it accurately without prejudice. When faced with the massive problems that confront such areas, damp or semi-derelict housing, extreme over-crowding, planning blight, inadequate social services, lack of apparent recreation opportunity and of open space, the teacher's instant reaction may be that the whole area is worthless and should be swept away to be replaced by something bright and modern. It is here that there is a great need for caution. The pupils' perception of the same area may be totally different. There is an increasing tendency for teachers in city schools to live elsewhere, often in comparatively comfortable suburbs or satellite villages. In such cases the teacher's view of the locality surrounding the school is an alien and detached one. The pupils' concept of the locality may include home, the family's roots in the area, friends, pastimes and favourite haunts.

The results of the well-intentioned but detached approach to urban renewal can be dramatic and are clearly visible in the efforts of the local authorities and planners of the late fifties and early sixties. Under their influence hundreds of acres of sub-standard houses were swept away and replaced by massive blocks of high rise flats. Elsewhere thousands of people were moved from over-crowded slums to shiny new housing estates on the edge of town. Judged in purely physical terms, both these changes resulted in a greatly improved quality of living. However, from the social viewpoint, much more than simply houses were swept away. Close knit family units were broken up, long established communities destroyed, people who had never been alone were isolated in living units stacked one on top of the other.

A more sensitive approach involving a mixture of renovation and renewal with particular care of the local population and the desire on the part of many of them to remain in the same area could have produced a very different result. It is this type of sensitive approach which the teacher should seek to develop.

Finally, environmental education training courses should equip the teacher to be sensitive to the type of child in his or her care. It is not sufficient for teachers in this subject area to be aware simply of the age and ability of pupils in a particular class. They must also have a clear understanding of the factors outside the classroom which are acting on these pupils to influence their development, their attitudes etc. The parents of many of these children have grown up in the post-war era, a period when economic growth has become almost a religion. They have been taught to expect a steadily-increasing standard of living. They have been led to believe that success can be measured only by the quantity and quality of personal possessions. They accept the idea of inbuilt obsolescence. The children are subject to massive commercial advertising pressures, to follow certain patterns of dress and behaviour, to buy certain products. These are the pupils whom a teacher is trying to influence in a few hours each week. Unless the course is very carefully planned and expertly taught, environmental study will remain something interesting to learn about in school but which has no relevance whatsoever outside school hours.

The training of teachers in environmental subjects is indeed a formidable task and continual research and development is essential to ensure its training is as effective as possible.

In-service training

The need for environmentally-orientated teaching is too great to rely simply on pre-service teacher training. The majority of teachers who must take on this task are already in the service in our schools. The introduction of more pre-service courses must be paralleled by an equally strong development of in-service training for serving teachers. It may be possible to withdraw some teachers from the classroom for an intensive one year re-training course, but these are likely to remain in the minority. For the majority of our teaching force a wide variety of short courses available over a long period is probably a more realistic answer.

Courses can take a bewildering variety of forms; some only seek to improve the teacher's own knowledge of environmental aspects in a particular subject area. Some universities now run part-time environmental study diplomas spread over 3 years of part-time study. These are of great value to teachers wishing to increase their general knowledge in this field. Other courses concentrate on increasing the range of skills of teachers. For example, some teachers' centres run sessions to introduce teachers to a variety of monitoring techniques to enable them to measure air and water pollution etc, and to build their own monitoring equipment. Some more adventurous courses have set out to deliberately cross subject boundaries, under such headings as "ecology for the geographer" or "field geography for the biologist". Finally, the occasional course adopts a multidisciplinary approach from the beginning, possibly assembling a team of historians, geographers, artists and scientists to study a theme like "our town".

Although many courses have now been running for several years, in-service training in the environmental field is still in its infancy. Far too few teachers at present participate. The fact that the body of information is constantly changing and expanding means that regular re-training would always be a requirement. Indeed we may perhaps look forward to the time when each teacher's contract includes a requirement to engage in some form of re-training activity in each academic year throughout his career.

3. CURRICULUM DEVELOPMENT

Curriculum change is usually evolutionary rather than revolutionary. New material is incorporated in the curriculum by a gradual process of osmosis. It is useless to suggest that urban environmental education could or even should be given a prominent place at the core of the curriculum in a matter of a few days. As our society becomes more and more complex and our aspirations for our pupils continue to increase, so the pressure of subject matter fighting for inclusion in any syllabus becomes more severe. Each new item must undergo a period of careful curriculum development and testing to ensure its validity before it can be included. All teachers must be constantly on their guard against following a fashionable trend in education just because it is there. The temptation is always great, especially for teachers who have been teaching the same subject in the same

way for a number of years and have become totally bored with the approach they are using. However, before undertaking any radical change of approach to a subject it is necessary for everyone to carefully review their educational objectives and to decide whether these can be better achieved by the new methods being contemplated.

Successful curriculum development and innovation can be undertaken at a variety of levels. An individual teacher can make an important contribution. With each year that a teacher spends in a school his knowledge of the pupils in the school, and that part of the city which surrounds it, will increase. This increased knowledge will bring greater confidence and the teacher will be in the position to decide not only which environmental issues are the most relevant for the children in his care, but also which topics can best be taught in that urban setting in which he works. In this way the significance of his own teaching will steadily increase. The greatest disadvantage of this approach to curriculum development is that much excellent work is often lost when a teacher moves to another school, unless it is very carefully recorded for the benefit of the replacement.

In any school where a number of different teachers wish to become involved in teaching about their local environment, school-based curriculum development becomes almost essential. The development of a closely co-ordinated programme of work is the only way to avoid repetition and to ensure integrated approach across the subject barriers. It may also be necessary as a way of protecting the local community from an endless succession of surveys initiated by different classes within the same school.

In the United Kingdom at least, some of the most successful development in the environmental sphere has been undertaken by groups of teachers from one locality working through a teachers' centre. This locally-based approach has many advantages. It allows a number of specialists in the same subject area to come together to exchange ideas and it results in a great economy of effort, for each teacher in any team need undertake only a small part of the total volume of research required. The material produced by such teams often has a very strong local emphasis and is of immediate relevance to pupils of schools in the area. Group development will often permit the creation of a centralised resource pool from which all schools may draw and this can be extremely cost-effective. Another advantage is that the material produced in this way can be tested and evaluated by a number of different teachers in different schools and situations. Any evaluation will therefore be much more valid. Finally, this approach has one benefit which is often overlooked. Not all the teachers participating in such development work will be highly qualified or experienced. Many will be young and enthusiastic, but with little classroom experience. For them participation in the local curriculum development scheme can prove to be one of the most valuable forms of in-service training.

Curriculum development may be undertaken at a national level either through a government agency or through an independent body with national status. This type of development has several advantages; of all the types it is most likely to have adequate funding, not only for development but also for publicity and publication of new materials. Therefore, it must have the maximum chance of having a major effect on the national curriculum content.

Another advantage is that such projects can be highly selective in terms of the staff appointed to run them. In theory at least this should mean that the best and most experienced teachers in any subject area should naturally gravitate towards such a project. Such national projects also represent the most economical use of resources since the results can readily be made available to several thousand schools. However, they are probably most successful when the material can be regarded as a resource rather than a set course. This approach is probably essential when producing materials for urban environmental education. A great deal of very valuable material can be made available on such subjects as planning, housing, transport, urban renewal, population growth, use of resources etc, detailed case studies can be included. Nevertheless, if we accept that significance is the key to the most successful teaching then the individual teacher must be free to select from national project material those items which best suit his own students' locality.

CONCLUSION

This chapter has attempted to review very briefly teaching method, classroom organisation, teacher training and curriculum development. In the context of urban education each of these subjects warrants a book of its own and indeed many of the sub-headings could form the titles of lengthy papers. However, it is hoped that what has gone before will provide us with stimulus for discussion at local and national level. For there is no doubt in the minds of those concerned with the conservation of our resources that the environmental education of our urban populations is an essential factor in any attempt to bring Man into a state of ecological balance with his surroundings.

CHAPTER III

Facilities

Any teacher in an inner city school who sets out to develop a programme of environmental education will find a wide variety of facilities available to assist him in his work. Moreover, many facilities which do not exist can easily be created by co-operation between a number of teachers and other local organisations. The teacher will face two main problems. Firstly, there will be a need to teach pupils about the urban locality in which they live and its place in the city as a whole. Secondly, there will be a need to overcome the limitations of the urban setting when leading children to an understanding of broader ecological concepts. While adequate facilities will normally exist to allow the teacher to achieve the first objective, the second may require some ingenuity. This section attempts to review briefly the available facilities. The approach adopted is a concentric one, beginning with the school classroom and laboratory. It then extends to the school site. This is followed by a review of facilities in the general urban environment and then a more detailed examination of certain specific aspects of this environment which may be of particular value.

THE CLASSROOM

Any well-balanced programme of environmental education for children in inner city schools will include both rural and urban field work. However, limitations of time and money and the inflexibility of time-tables in most schools will mean that the greater part of the course will need to be taught in the classroom situation. Many of the purely theoretical concepts must be dealt with in this way. But in this particular book we are primarily concerned with active educational methods. Practical work adapted to the classroom includes the following:

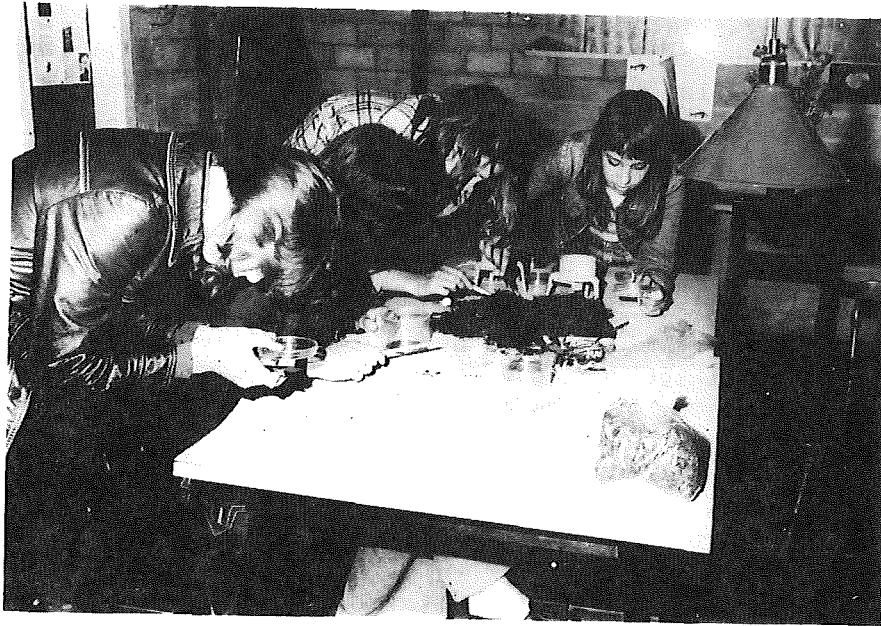
1. Activities designed to establish contact between pupils and living organisms and to develop within the pupils a sympathy for the basic needs of living things.



Establishing contact between pupils and living organisms

2. Practical activities designed to produce an understanding of fundamental processes and concepts.

3. Exercises to develop skills and experimental techniques required in field work.



'Exercises to develop skills and experimental techniques

4. Follow-up work to complete studies done in the field.

5. Long-term investigations which cannot be carried out during the normal field work time.

6. Investigations of topics which are virtually impossible for children to study in the field situation. This may involve the use of models, games and simulations.

Many city children grow up almost totally deprived of contact with living things. They live in high-rise flats where pets are forbidden. The streets are often devoid of trees and lacking any recreational open space. In such circumstances it is likely that the school is the only organisation with the ability to develop close contact between children and other animals and plants.

The emotional advantages of allowing young children such contact are well known. A diversity of living organisms in the school will greatly facilitate the teaching of some aspects of environmental study.

For most living things the average classroom represents a hostile environment and some modification will be necessary to overcome this difficulty. For example, the classroom atmosphere is often too dry for the maintenance of a wide variety of plants and types. This can easily be overcome by the construction of a Wardian window. This need be nothing more than a simple timber frame built round one window and covered with plastic sheeting, allowing plants to be maintained in a higher relative humidity. With this simple provision, particularly with extra heating and lighting, plants will thrive in any city school.

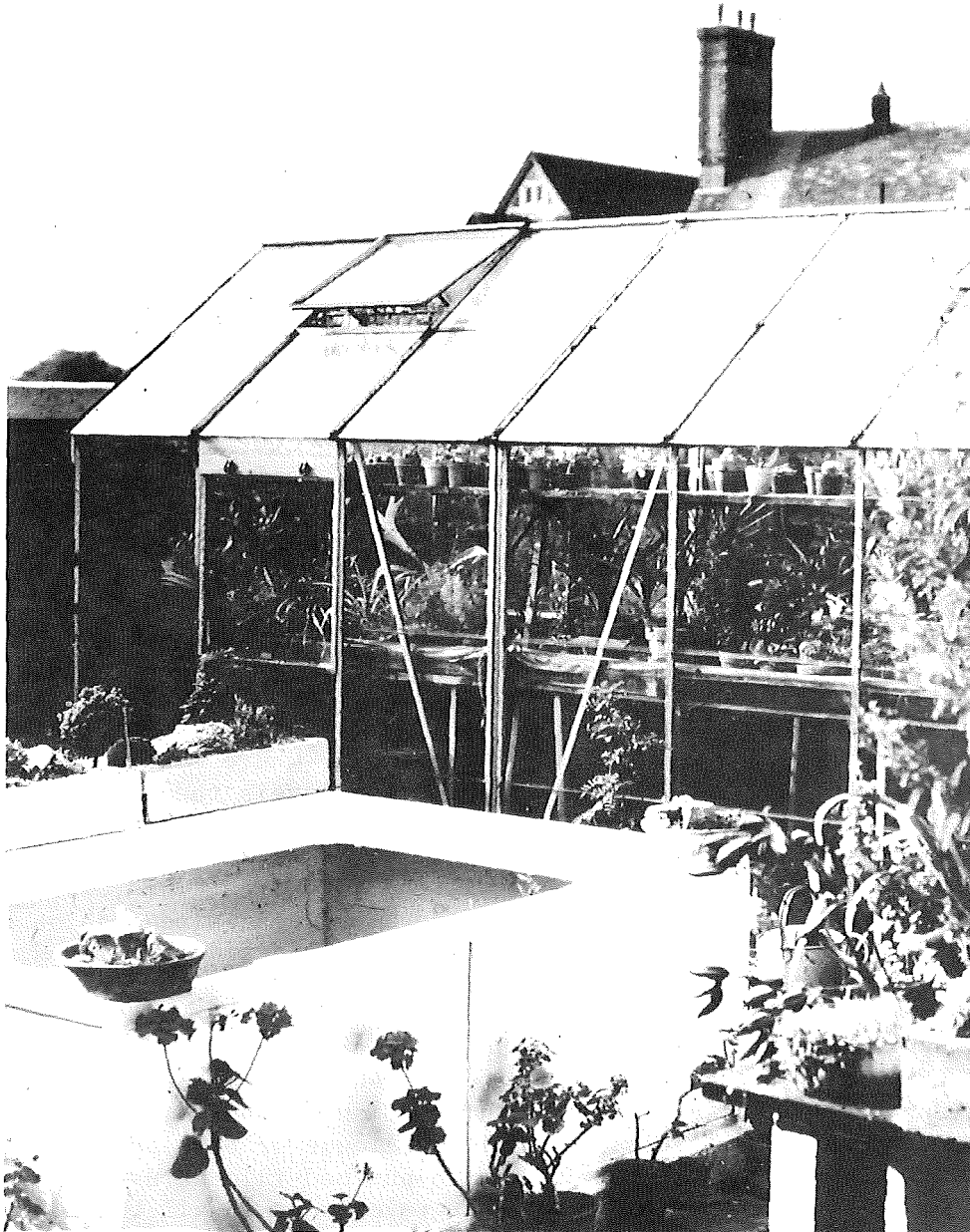
Small mammals present particular hazards and where possible a separate animal room should be provided. This must be heated, well-ventilated and well lit. Caging must be hygienic and only disease-free stock should be used. Many plants and animals can be introduced to the school without any modification to the structure simply by the use of a variety of aquaria and vivaria.

Availability of a wide range of living organisms in the classroom will greatly facilitate the use of active methods of environmental education. This can include the study of germination and conditions necessary for growth but also behavioural responses to environmental factors, social behaviour, adaptation to environment, food chains and the ecosystem etc.

The ideally adapted classroom or suite of rooms will also allow pupils to experiment on physical and chemical aspects of the environment. They should be able to carry out experiments on energy, production and conservation etc. The sophistication of the facilities will naturally vary widely according to the age and abilities of the pupils. For example many science laboratories now used by children in the sixteen to eighteen year age range are equipped to carry out simple experiments in nuclear physics. Where children are to use the basic skills of field work, the classroom will also need to be equipped with sampling and measuring equipment. This equipment can be used with aquaria, vivaria and Wardian windows, to teach the pupils to take such measurements as pH, dissolved oxygen, soil temperature, humus content, light intensity. In some cases the final experiments themselves can be carried out from the classroom. For example, where continuous sampling of air is undertaken in order to measure pollution levels then the monitoring equipment may readily be established in the classroom with air samples being drawn in from outside. Finally where a school lacks a central resource centre the environmental studies teacher will need to create his own. This means that one part of the classroom will need considerable adaptation to provide adequate book-shelving, storage for colour slides, film strips, photographs, wall charts, newspaper cuttings, magazines and perhaps a few three-dimensional display items. There will also need to be storage for film slide and film strip projectors, tape-recorders, overhead projectors, cameras etc. Every item in the resource centre should also be listed under as many headings as appropriate and the information stored in a retrieval system. This may take the form of a simple catalogue or perhaps something more sophisticated like centre-punched or edge-punched file cards which will allow the more rapid isolation of particular references in all the media available within the resource centre.

THE SCHOOL SITE

Environmental teaching possibilities in urban schools can be greatly extended by the intelligent adaptation of school grounds. Such adaptation needs planning at two levels. Firstly, teachers must look carefully at the space available to them and decide how it may be most effectively used. Secondly, those involved in the creation of new schools should give as much care to the planning of the outdoor resource area as they do to the provision of basic services within the building itself.



Two views of a flat roof 10m x 10m at an inner city school adapted to accommodate greenhouse, flower bed, terrarium, pond and marsh, aviary, cold frames, trough gardens and animal cages.

Even in inner city schools where the whole of the playground is covered by tarmac the problem is not insurmountable, for areas of tarmac can be removed with pneumatic drills to reveal the soil beneath or raised flower beds can be built over the tarmac itself. Once the decision has been taken then the opportunities are limitless. One first step may be the planting of trees which not only provide material for study but also soften and improve the environment of the school and provide shade and shelter for the pupils. Raised beds need not be devoted to formal displays of flowers; they can be developed as ecological plots, including perhaps a pond, a marsh, lime-loving plants, heathland plants, alpins etc. Other areas can be devoted to the growing of herbs, plants producing primitive dyes and some of the major food plants. It would also be possible to set up demonstration plots to show, for example, the evolution of modern strains of wheat. Other beds could be used as treatment plots to study the effect on growth of fertilisers, selected pesticides and so on. Such facilities can be extended to include greenhouses, cold frames, aviaries and animal enclosures.

The educational value of any such site adaptation is greatly increased if the children are involved at all stages. They can help to plan and carry out the physical work involved. They can also be made responsible for fund-raising, the estimation of quantities and costs of materials required etc. This involvement of the children is also one of the best ways of avoiding later vandalism to the site. Opportunities for site modification are not restricted to biological studies. Children can be given small plots of ground to cultivate vegetables or flowers for cutting which they can take home with them. Some teachers of history and craft may welcome the opportunity to construct a primitive kiln in which to fire simple pots. In some schools it may even be possible to excavate clay on site. In the re-planning of the school grounds as a resource for education rather than simply as a play area, the mathematics department has a very important part to play, not only in the initial survey but also in calculations of quantities and costs of materials required, time to be allocated to each project etc. The grounds can also provide a site for a weather recording station.

LOCAL STREETS

The streets near the school are certainly the place where local studies will begin. Yet the first few paces along such streets will demonstrate to teachers the almost total lack of awareness of their surroundings on the part of the pupils. However, the same streets with their surfacing, pavements, houses and shops, industries, traffic, people and furniture can form the basis of dozens of different projects.

Town trails

One major feature in the development of urban study during the nineteen seventies has been the rapid proliferation of town trails with over five hundred now in operation throughout the United Kingdom. The town trail has marked similarities with a nature trail. It is a pre-planned self-guided route through an area of a town. Some trails are actually way-marked but more often they rely on trail guide leaflets. On the whole these trails are intended to increase the visitor's vision and awareness of his or her surroundings. Trails may be designed to serve children or adults, residents or visitors. They may concentrate on architecture or planning issues; local industry or the history of the area. Or the guide leaflets may be general including elements of all these aspects. A town trail prepared for the use by children will probably differ radically from an adult trail guide based on the same route. While the adult version may concentrate on giving information the child's trail leaflet should attempt to involve him or her in some practical work. This may involve measurement or detailed observation of street furniture, or the sketching of buildings. It may ask the child to express opinions of the future of the area, or whether particular buildings should be saved or demolished. At its best it will probably be selective and this makes it possible to write several different children's trail guides for the same route. One may concentrate on road signs and graphics, another on shops and goods on sale, and a third on housing or architecture. This would enable a group to be kept together for ease of supervision and yet be able to undertake a wide variety of activities. Perhaps one of the main advantages of the town trail is that it can be used to give children a quick introduction to a particular area and also help them to find their bearings. They may then pursue some certain aspect of interest in that area to much greater depth.

Buildings

For children who are just beginning, or for groups with limited time there is much to recommend the study of a single building or small group of buildings; as this reduces the amount of information that they need to handle. It may be simply to record one building in detail through sketches and verbal description, noting the materials in which it is built, style, size, finishes etc. This can serve as an introduction for comparative work on building styles of different periods or different parts of the town. Careful study of several groups of buildings can often reflect the history of urban growth in a particular area and also help the children to understand social conditions at a particular period in history. In some cities individual houses are available which may be studied in greater depth.

The Georgian House in Edinburgh has been restored and refurnished by the National Trust for Scotland, completely in keeping with the period of its heyday. Children visiting the House can be given assignments which help them to gain a clear insight into the life of occupants during that period. There is a marked contrast between the elegant and relaxed atmosphere of the upstairs rooms used by the family and the kitchen and other working quarters which were the realm of the House staff. Some children may prefer to study a variety of construction techniques and materials, backing this work with classroom experiment. One objective is to help children to develop an aesthetic sensitivity to the urban environment and perhaps in their later years to be able to make value judgements on existing and proposed buildings in their own area.

Shops are one type of building which attract a lot of attention from school groups. Children may investigate the development of shops in their area combining local surveys with research in record offices etc. They may wish to discover which types of shops occur in local shopping areas and in the centre of cities and explain the differences between the two. They may try to assess the attitudes of shoppers to the shops which they use, or to attempt to trace the sources of all the goods on sale in a variety of shops. These and many other lines of enquiry have become traditional in numbers of schools but are nonetheless valuable. The rapidly growing interest in industrial archaeology means that many cities now have under restoration a number of important industrial buildings from previous eras. These are of great value to children studying the history of industry in the area. Moreover, they often provide an opportunity for older students to participate in active building restoration. This voluntary participation may be seen as one of the strongest indications of personal interest in conservation. These activities are to be encouraged wherever possible.

Transport

Transport studies are so well-established that it is barely necessary to mention them. Any city offers many opportunities for such studies. Children may discover coaching inns, redundant railway stations and closed canals. This may lead them to work in the local public records offices or other archives. They may also do comparative surveys on how they themselves travel, how far do they move in an average week and what means of transport do they use, are there any routes which are particularly dangerous to children etc.



One of the successful entrants in a schools "Build a city-car" competition sponsored by British Petroleum

Traffic surveys are well-established as part of the routine, children assiduously assess morning and evening traffic flows in both directions at the ratio of private to commercial vehicles, count the number of people per car etc. They may attempt to do a seat belt survey or monitor noise level for heavy lorries passing through restricted streets. Other groups test public attitudes on local transport, seeking opinions on car-parking, public transport, desirability of one-way streets and pedestrianised areas. They may study the effect of improvements to the town's road system comparing journey times before and after the completion of the scheme. They may assess environmental damage caused by planning blight or study road safety and accident black-spots. This may link with studies on safety training for drivers and pedestrians. For students in the upper age range one company has sponsored a competition challenging schools to build a car suitable for city use and a large number of ingenious vehicles have been seen as a result of this.

Services

Children must understand that the survival of the city community depends on a continual supply of certain basic services which it is beyond the power of the individual householder to provide in so densely populated an area.

An adequate supply of fresh water was often good reason for the creation of a settlement and children can attempt to locate the original sources of supply for their town and compare these with sources used today. Many city children will have the opportunity to visit water works and observe the processes of filtration and purification. During such a visit they may also learn the scale of water consumption and how water quality is safeguarded. They may measure the use of water in their own homes and discuss conservation methods. This in turn may lead to discussion of the national water supply and the problems and opportunities which this presents for agriculture, recreation etc.

The supply of adequate energy to maintain the ever-increasing standards of living and the spiralling requirements of industry is one of the key environmental issues today. Many city children will be able to visit power stations and gas works and perhaps oil refineries. Once again they can do a comparative study of energy consumption in their own homes. This is another subject where it is ever possible to move in ever-widening circles from classroom to home to locality to city, to nation and on to the world. Children can compare their own per capita energy consumption with residents in third world countries and it is also certain that with the older pupils the debate will move on to the consideration of alternative energy resources. In some towns there may be a university or department which is carrying out experimental work on this particular topic or it may be possible to arrange for a visiting speaker from one of the conservation societies particularly concerned with this approach.

Visits to sewerage works, local incinerators, waste tips and scrap yards can form the basis of a study of waste disposal. Every effort should be made to increase children's awareness of the quantity of waste generated by modern man. In an environmentally conscious programme the two main emphases should be on avoidance of pollution and the re-cycling of non-renewable resources wherever possible. Most of the waste disposal facilities will occur within comparatively easy reach of the school.

The social services are the one aspect of the urban environment which many children take completely for granted, but there are several important topics for study here. They should learn something of the public health service and the preventive measures taken by appropriate departments to safeguard the health of the whole community. This may involve visits to hospitals or the offices of the medical officer of health, to public health laboratories etc. They should also learn something of the parental role adopted by society through its support towards families in times of hardship or unemployment, through its concern for the health and welfare of children and through its constant care for those who are so handicapped as to be unable to support themselves at any stage during their lives. This should help the child to an understanding of the complexity of inner-urban society and the total inter-dependence of members of that community.

One service which will attract considerable attention is pollution control. Children can visit industries to see the measures they take to prevent excessive pollution of air and water if indeed such industries exist in their particular area. They can carry out surveys using biological indicator species to measure both air and water pollution and they can carry out chemical analyses to determine levels of carbon monoxide in streets crowded with traffic etc. They may monitor noise pollution by urban motorways or airports and study the measures taken by local authorities to minimise the effect by double-glazing houses nearby or planting trees and shrubs to absorb sound and so on. In some industrial cities it may also be possible for groups to become involved in the recovery and restoration of land which has been polluted by industry. A large number of pilot projects are now under way and an increasing supply of literature on the subject is becoming available.

The home

The use of home surveys in environmental education is always a delicate matter as it can be offensive to some parents but with co-operation can prove extremely useful. The home may be seen as an incomplete model of the urban system demonstrating a through-flow of energy and materials. It can be compared with normal ecosystems. Children can fairly easily measure energy inputs and also inputs of food and materials. The family itself is a starting point for investigation of family size, over present and past generations, and the whole family can consider how it relates to the community and what it puts into the community and takes out of it. Does it participate in voluntary work or make use of any social services for example? Does the household contribute towards energy conservation through insulation or re-cycling of materials? Does it minimise use of insecticides as a conservation measure? Children can measure the amount of floor space in the house or flat and compare this with houses of different ages or in different locations. There is always something slightly invidious in asking pupils to compare their homes with other members of the class and the teacher will need to be confident of his relationship with his pupils before beginning on this type of work.

PARKS AND OPEN SPACES

In the apparently unpromising environment of the inner city there survives an amazing and abundant variety of animals and plants living on the streets themselves, on derelict land, in parks and open spaces. On many waste tips exotic plants can be found growing in profusion and will create great problems for the enthusiastic young naturalist with his illustrated flora of native species. Derelict land provides a fascinating diversity of wild life including garden escapes and native weed species. These offer opportunities for study of colonisation and competition. Street trees are an invaluable resource and have been the subject of several books. Apart from the normal biological studies and learning the use of keys, children can become involved in the amenity aspect, learning what trees are suitable for towns and how they should be cared for, what local authority policy is for tree planting etc. They can discover that many trees are protected by law and what can be done to safeguard other trees in their own locality.

Very often a park is the only open space of any size available in the vicinity of the city school. The neatly trimmed and tidy flower beds have in the past often deterred teachers from using this type of area, but almost any park offers opportunities for some of the work outlined under the section headed "school site". The increased level of car ownership amongst urban population has led to a decrease in the importance of the local park as a lung for the population and it is now often the resort for only the youngest and oldest age bands of the local community. In such a situation a new role must be found for the park and environmental education is merely one aspect of this new role which is capable of future expansion. Many parks have been used as a basis for nature trails in towns. Where such trails are produced they should all contain some element of practical work for the children using them. In many cases, the children themselves have taken their parents along the nature trails at the weekend.



Children working on a nature trail in the Horniman Gardens,
a park in S E London

Nature trails are only the first step in developing the educational use of the parks. Increasing numbers of park managers are finding it possible to set aside areas of land as nature study sites. Here the grass is not mown; species of wild flowers are encouraged; shrubs are planted to attract insects and birds and indigenous species of tree can be planted,

One of the most interesting recent developments in this field in the United Kingdom has been the proposal to establish an Ecological Parks Trust. Landscape or ecological gardens have been more familiar in the Netherlands and other European countries than in the United Kingdom. One such park has recently been established on the site of the former lorry park adjacent to Tower Bridge in London.



Teaching in the landscape gardens

The park has recreated a variety of habitats and is to be widely used by schools. The aim now is to extend this idea throughout cities in Britain using ecological parks as a comparatively low cost concept which may be employed in the reclamation of derelict land. It is a scheme which intends to make fullest use of voluntary assistance from the local community. Parks can serve as a starting point of wider studies of the locality. They are very often the only safe space available for recreation and from here can develop a wider study of recreational needs and opportunities in the local community. In other cases children may be able to adapt to part of the park to meet the needs of the blind or physically handicapped. Some local parks were once private houses and gardens and from here interesting enquiries into the history of the area can begin. Very often they have some interesting park furniture, outdated street lighting and other signs and symbols from the past.

Finally, if the firm understanding could be developed between the educational and park management interests, there is absolutely no reason why the parks themselves should not become the centre of a new initiative in environmental education for the general urban population. Schools, colleges and parks departments could operate to produce environmentally orientated displays, to hold outdoor meetings and lectures for the community on environmental topics.

MISCELLANEOUS URBAN FACILITIES

There are a number of organisations and buildings which may occur in any city which can offer facilities for schools. Sometimes this may require a little persuasion but is nearly always worth the effort,

Planning departments

Local and national authorities today increasingly express their desire for public participation in the planning process. In many cases this wish is much more than merely paying lip service to an ideal, but on the whole public response has been disappointing. This is understandable for in general the public has no conception of what is involved in the planning process. It is desirable therefore that children should at an early age become involved with local planners. This also happens to be an excellent way to introduce them to a study of their local area. Planning departments have become more co-operative in recent years. Writing in the Bulletin of Environmental Education No. 56, Neil Pendleton of South Yorkshire Planning Department suggested that planners themselves should play a more positive role in developing this co-operation. He proposed that planning departments should act as a resource, by planning exhibitions available to schools, by informing them of interesting sites owned by the local authority and even by sending planners into schools to talk to children. He also believes that the authorities should promote projects and that there are several fields in which children can do useful survey work, for example, on the subject of teenage leisure behaviour, information which would be invaluable to planners but is not readily available. Children are also major users of transport and recreational services and Pendleton feels that ultimately the answer must lie in developing long-term co-operation between schools and planning departments, as the amount of effort required for one-off exercises is just not economical.

Some planning departments have organised highly successful competitions involving local schools. They have provided background material on housing, population, employment, shopping, recreation and so on. Schools have chosen any project on some aspect of the background information.

This co-operative approach is obviously more constructive than projects which bring children into direct conflict with local planning authorities. However, such conflict situations may well arise and must be deliberately avoided. For example, if children feel very strongly about a building of local importance which is to be demolished or a scheme which will threaten their own homes or school or anything else of a similar nature, teachers should be fully supportive, as the children prepare a case stating their point of view. This case should then be presented to the local authority through a planning enquiry or any other mechanism which exists to permit local residents to express opinion. Correctly handled, there is absolutely no reason why such disagreements over policy should have any detrimental effect whatsoever on relationships between the planning department and the school.

Museums

Outside the classroom and school site the local museum could constitute by far the most important single facility in the development of practical urban environment study. The museum is not controlled by the rigours of the school curriculum and can formulate programmes which are totally interdisciplinary and are often greatly strengthened by the nature of the collections. Local museums often become the repositories for a large range of artifacts reflecting not only the crafts and industries of the region but also its social history and natural history. In many museums this regional material is supplemented by the collections of artifacts and natural objects brought back from all over the world by 19th century travellers. Tools, weapons, costumes and ornaments; geological and biological specimens - all can be of value in environmental programmes. The museum can perform several functions. It can act as information centre, accumulating resource materials on its own locality. It can control and monitor local sites of archaeological importance and can help with the discovery and recording of historic buildings in the neighbourhood. It can act as a biological record centre. In much of this work it can make use of volunteer labour.

The museum's permanent displays can also increase public awareness of the local environment. They may reflect the history of the area; highlighting the processes of urbanisation and industrialisation. Or they may provide information on natural history with a series of displays devoted to local habitats and panels dealing with threats to wildlife etc. Displays may concentrate on local crafts or industries or reflect the changes in agriculture in the past hundred years; while a limited number of vehicles can reflect the growth of public transport in the region.

Temporary displays can also be of value. The museum can put together a display to show local people the implication of a proposed motorway to be built through their locality or some other specific threat. Alternatively, the display may be aimed at increasing people's interest in and affection for their own community, drawing attention to the historic values of local houses or streets and the particular strengths of a local area.

In terms of active educational methods, museums can make use of any of the techniques outlined in the earlier section on teaching, particularly if they have a specialist education department. This facility together with the multidisciplinary approach and the great expertise of many curatorial staff illustrates the true potential which museums have to offer.

Zoological gardens

These are the facilities most likely to be criticised by environmentalists. Often such criticism is justified. But not in the case of major zoos which are well-run and pay serious attention to their prime responsibilities of research education and conservation. Such well-run establishments present many opportunities. Most of the lessons based on whole organisms mentioned in an earlier section can often be taught equally well in zoological gardens. Indeed, the wider range of organisms available for observation can increase the scope of lessons. More important to zoos themselves and equally important, to children, are lessons that can be developed which are related to conservation. Many zoos present to children organisms which are threatened with extinction in the wild. These can serve as a basis for lessons on conservation, beginning with a simple study of the animal first and passing to the subject of increased pressure on world wildlife through habitat destruction, urbanisation, over-collection, poaching and disturbance etc. The zoo must also make sure of its own policy towards collecting and captive breeding is a truly conservationist one.

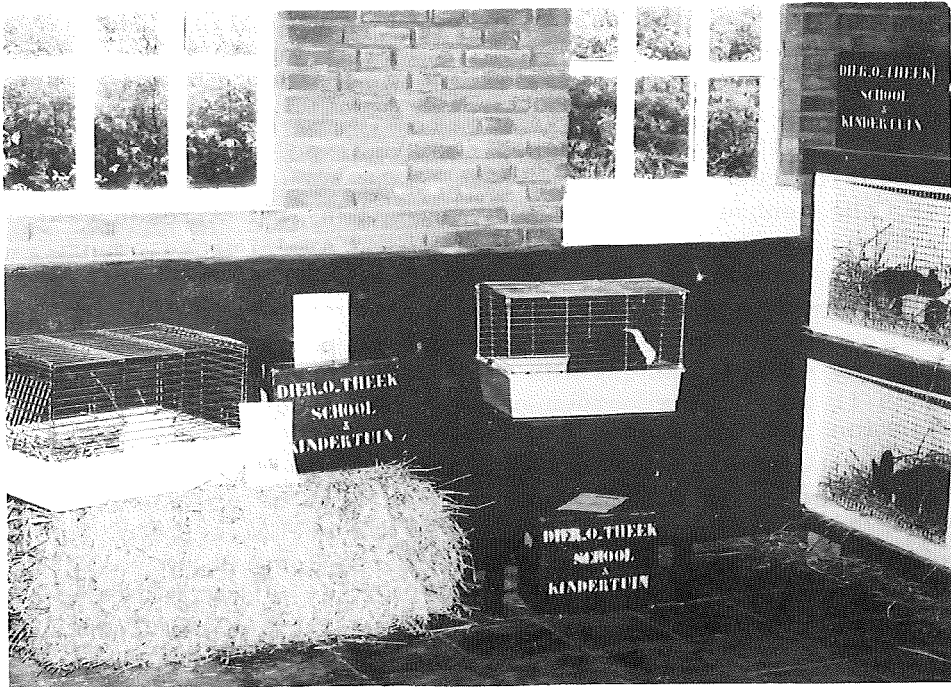
Study visits to zoos must be planned to produce activity from the pupils. They must be made to observe accurately, to sketch and to write notes, to compare closely related species etc.

Botanic gardens

Once again much of the work mentioned under the "classroom" and "school site" and "urban parks" can be carried out in botanical gardens. It would appear that to date very few directors are making use of their opportunities in the field of environmental education. The type of service to be developed by any botanical garden will depend on what is already being done in the region. If the schools and urban parks are also being developed, then the botanic garden will be free to concentrate on those subjects which it is well-equipped to develop. It could for example set up a series of reconstructed habitats as has been mentioned earlier. It could provide a sanctuary for certain types of wild flower and define a policy of seed collection and re-introduction of the species into the wild. Almost any botanic garden with sufficient greenhouse space could grow examples of main food plants of the world and such a display could be developed to examine the implications of the GREEN REVOLUTION showing samples of strains of modern food plants developed in recent years. Other possible subjects would include tropical rain forests and their importance, medicinal plants, trees and timber production, plants and fabrics, natural dyes etc. The botanic garden should become much more than a research establishment and the creative and enthusiastic director will find many more subjects worthy of his attention.

Biological supply services

An urban educational authority can provide very valuable help for inner city schools by the establishment of a biological supply service. Such a service will send out to schools collections of living materials at regular intervals, or perhaps attempt to supply a specific specimen on request. It can ensure that schools use healthy stocks of mammals by breeding them under controlled laboratory conditions and it can also help with the establishment of many habitats such as aquaria, vivaria and so on.



Biological supply service

The biological supply service can also make arrangements for loan of equipment, some of the more sophisticated environmental monitoring equipment may be too expensive to be supplied to each individual school. Such apparatus can be purchased centrally and kept by the biological supply centre. It can then be delivered to individual schools for limited periods. One large school operating a biological supply service for primary schools in the area introduced loan units of living things. Each collection had a specific teaching theme and was supported by reference books, slides, suggested project work etc. The unit then went to a different primary school in the inner city for a period of not more than six weeks. In this way each primary school was able to have access to a constantly changing selection of living material without overstretching its own rather limited accommodation.

URBAN STUDY CENTRES

All the facilities discussed to date have been established for different purposes and the contribution which they are able to make to study of the urban environment is purely coincidental. However, in recent years a few new centres have been established which have the sole function of providing facilities and resources for detailed study of the city. Even when children have studied their own locality they can derive great advantages by looking at a variety of urban settings, inner city industrial and commercial areas, central and peripheral residential areas, localities containing new and old housing developments etc. It is equally desirable for children from beautiful historic cities to visit major industrial conurbations and vice versa, while children from rural areas should have opportunities for work in towns. It is in this inter-change between students of different areas that provision of specialist facilities to support the teacher have become essential. The need has long been recognised in traditional rural field work and large numbers of field study centres exist. The new urban study centre may be seen as a parallel provision for towns.

Urban study centres may be residential or non-residential but they are likely to have certain basic functions in common. Their role may be seen as supportive, providing somewhere for children to meet, where resources including slides, maps, tapes, archives, project materials etc are readily available. If the centre becomes the focal point for curriculum development using local teachers then much more proven material will be available. However, the centre should be much more than just a resource bank. It can be a place to which outstanding speakers are invited, who may not have the time or desire to visit individual schools. It may serve as a meeting place for amenity groups operating in the area, providing facilities for them to study planning proposals and supporting them wherever possible in any official enquiries regarding local planning matters. Indeed, in many cases it may be the warden of an urban study centre that initiates amenity action and it is most desirable therefore that urban study centres, wherever possible, should be politically independent of any local authority. Once again a balanced approach will be necessary. It would be easy to select only those issues which make headlines and attract most attention. The fact remains that most people will be obliged to or will from choice continue to live in towns. Children must therefore be presented with not only examples where city life has failed completely but also a more positive aspect which demonstrate just what can be achieved in towns by enriching patterns a city and its social life. One interesting parallel to the development of urban study centres has been the growth of the urban visitor centre concept.

Study centres have been designed primarily for educational groups at all levels. The visitor centre attempts to help members of the general public to understand the city in which the centre is situated. In some cases historic buildings including redundant churches have been converted to house visitor centres, or heritage centres as they are often called. One such centre intended to form a focal point for visitors to the city aims to provide "a framework of interpretation" to explain to visitors and residents aspects of local history and architecture and the urban environment, to provoke them to exploring in depth items of personal interest. Such centres often make use of three-dimensional display and audio-visual programmes to elucidate the history and present character of the city. The concept is a new one and very few urban heritage centres have been in operation for more than 3 or 4 years; so their programmes are still evolving. At the moment few are actively involved in the promotion of conservation of the city or in such issues as urban renewal. It will be interesting to watch their future development.

CONCLUSION

This section has examined some of the facilities available for environmental education in an urban setting. The review is by no means exhaustive and is intended only to indicate the type of facility which may be of value. It is hoped that teachers will be encouraged by this review to re-examine the facilities and resources available in their own area. This examination should be in no way restricted by the suggestions made above, for each city can probably offer one or more facility which are of great value but not covered in discussion here. Local newspapers and art galleries are two such institutions that come to mind.

A more elaborate description of the types of facilities used for environmental education and interpretation in Europe is given in "Environmental Awareness", published by the Council of Europe in 1976.

CHAPTER IV

CASE STUDIES

THE TCPA EDUCATION UNIT AND THE ART AND THE BUILT ENVIRONMENT PROJECT

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In the schools of most European countries there has been a great deal of attention to environmental education during the last 5 years. Several international organisations have held conferences on this theme and issued manifestos, though it is hard to say what effect this has had in ordinary classrooms. The phrase itself is deeply equivocal. It can imply, for example, the use of the environment - instead of the classroom - as an educative milieu (a point of view which reaches its logical conclusion in the ideas of the "de-schoolers" like Paul Goodman or Ivan Illich) or it can simply imply education about the environment, treated as a classroom subject like mathematics or French.

The interpretation of its subject-matter is also equivocal. For most people, including most teachers, "environmental education" is interpreted as education about the natural environment, which is "good" and the threat to it from the built environment which is "bad" (on the unspoken assumption that God made the countryside and Man made the town). Or it is considered to be education about the conservation of natural resources, the crisis of energy and consumption, or about pollution and its effect on the habitat. Much less often is "environmental education" considered to be concerned with the towns and cities where most of the children of Europe live and where most of them go to school. As recently as 1975, English teachers addressing conferences on the subject organised by UNESCO or by the Council of Europe found that their colleagues in other countries were surprised that the built environment should be considered a major theme of environmental education. This is by no means to suggest that British schools as a whole are more advanced in this area than those of any other country. Very often it is the enthusiasm, the tenacity and the understanding of an individual teacher that is important, rather than any provision in the official curriculum of the school. Very often too, that teacher is frustrated by the examination system, the syllabus of his subject, the timetable or the whole organisation of the school.

When we look at the environment through the spectacles of school subjects, jockeying for space and time, status and posts of special responsibility, as well as from the point of view of comparability and what is known as "academic rigour", it is painfully obvious that the most important aspect, the effective relationship between our pupils and the environment, the area of sentiments and feelings about the environment, is neglected,

When Mr MacGregor of Chorley College of Education made a survey among teachers to see who was involved in environmental education he found that it was claimed to be the concern of every conceivable subject from Religious Education to Modern Dance, (And in case you think that the latter instance had some reference to the shimmering exploration of the fire escapes of the tenement houses of New York in West Side Story, the claim that was actually made was that dance was concerned with the spatial and sensory exploration of the environment; that it was concerned with spatial awareness.) Similarly, when Mr Peter Berry conducted a survey of 400 secondary schools for the Conservation Society, asking amongst other things, which departments were involved in environmental education, the answers were classified as Geography 73%, Biology 59%, Science 52%, General Studies 37%, History 33%, moving down to "other departments" which included as also-rans, Home Economics, English and Art.

Admittedly it was a rough-and-ready survey, but it indicated, as many advisers and inspectors would readily corroborate, that in the growing emphasis on the environment in education, few school art departments have played a part. Of course a continuous line of educational philosophers from Plato, from Rousseau, through Ruskin and Morris to Herbert Read have urged that the education of the senses should be a central task for the teacher instead of a peripheral, marginal or optional extra. In practice the education industry has always rejected this claim. And for the vast majority of children, nothing at all is learned at school about the seen or perceived environment, and one of the reasons why there has been such keen interest in the Front Door project carried out at Pimlico School in London, by an art teacher, Eileen Adams, is precisely because very little else like it has been attempted by school art departments.

Front Door, an art-based investigation of the local environment, was conceived by Ken Baynes, a distinguished design educator as a kind of pendant to the Department of Education and Science (DES) sponsored research project on design in general education conducted by the Royal College of Art. The Greater London Council supported it by lending the part-time services of several members of its architects' department, and among its distinguishing features it has implied an all-through-the-school approach, from the first to the sixth year, close collaboration with other departments - geography and community studies - which in the contemporary secondary school is extraordinarily hard to achieve, and a continuing commitment: the idea of making a long-term impact on the curriculum rather than a "one-off" effort for, say, European Architectural Heritage Year.

The Town and Country Planning Association's concern springs from different roots. In the late 1960s when the widespread public dissatisfaction with the results of planning policy on British towns and cities led to the slogan of "public participation in planning", just as in the United States it led to ideas about "advocacy planning" (the planner as advocate rather than as judge, jury and executioner) the government appointed a committee led by the late Arthur Skeffington to produce the report People and Planning (HMSO 1969) which among other things recommended that education about town planning should be "part of the way in which all secondary schools make children conscious of their future civic duties" and that it should be "part of the liberal and civic studies within places of further education", and that the training of teachers should include "a similar emphasis on civic studies, including the philosophy of town and country planning".

This sounds suspiciously like the jug theory of education - the child as a jug into which wisdom about whatever is currently conceived as a social issue should be poured: road safety, contraception, race relations and so on. But while the DES ignored the Skeffington recommendations, they were not ignored by the Town and Country Planning Association, a voluntary organisation founded in 1899 by Ebenezer Howard, which had itself found a clamour of interest from schools in environmental issues. In 1971 Anthony Fyson and I were appointed to run an education unit for the association through a journal called BEE (Bulletin of Environmental Education). Many years of work in this field have confirmed our original conviction that our task was not to encourage teachers to give lessons on the principles of town and country planning, or the legislative basis governing their application, nor on our architectural heritage. Our task instead is to encourage education for mastery of the environment, aiming at a situation where the skills to manipulate the environment are accessible to all the people, and not merely to an articulate minority. If the aim of environmental education is not to make children the masters of their environment, what else can it be for?

This puts us in the same camp as the Politics Association, whose inspirer, Bernard Crick declares that "civic education must be aimed at creating citizens. If we want a passive population, leave well alone". We advocate an "issue-based" or "problem-oriented" approach to the environment and a range of techniques and methods for achieving it: gaming, simulations and role-play, didactic theatre, town trails (devised by as well as for the class), urban studies centres (on the analogy of the field centres which have had such a beneficial effect on education about the rural environment). My colleague Anthony Fyson coined the word streetwork to avoid the term "urban fieldwork", as a description for the range of approaches to the built environment in the environment itself, which we advocate.

The Schools Council, which is the body in Britain concerned with development of the curriculum, has entrusted the TCPA Education Unit with a project called Art and the Built Environment 16-19 to explore the role of art departments, in schools and colleges of further education, in environmental education. It is working through a dozen trial institutions, and Eileen Adams has been seconded by the ILEA to serve as project officer. The trial schools and colleges are asked to undertake an evaluation of the quality of the local environment, or that of other urban areas of their choice, through the medium of preparing urban trails, through topographical drawing or painting, photography and creative writing, developing techniques for visual and sensory analysis.

This project is concerned with the neglected visual and emotional impact of the built environment: how we feel about towns and cities, what makes us feel at home in a place, what makes us sick of the sight of it. Students will not be asked in this context to consider the environment historically, sociologically or in terms of architectural styles, though it may very well be that these other approaches will enhance their perception of it. They will be asked to assess nothing less than the spirit of the place in terms of the human response to it. Needless to say, the project is not concerned with telling young adults what they ought to think or feel about their surroundings. It is concerned with enlarging their own capacity for appraisal and discrimination, with developing a "feel" for the environment.

We hope that out of this project will come a battery of techniques and approaches which can be applied anywhere. The project materials will be disseminated in the first place in BEE and through teachers' conferences, and when we have evidence of the viability and validity of the approaches adopted they will be published for the Schools Council. We want the result to be a widespread recognition of the place of art and arts subjects in environmental education, not in competition with, but in a close relationship with the approaches to the environment conducted under other subject labels. We fully expect to find that some teacher, somewhere, is already using each of the techniques that we shall "discover" without thinking that there is anything remarkable about it. And it would not be surprising to find that such teachers are in some department of the school other than art. The fact remains that at present in the vast majority of British secondary schools the art department plays no part at all in what is taught about the environment.

You might very well say that in starting this work in the sixth form we are taking up where the primary school left off, and you would be right. What about the 5 years inbetween? The answer is that we hope that this project will give the impetus for a sequential treatment of the environment in the whole of the secondary school art curriculum. Information about the project as it proceeds will be published in BEE and further details are obtainable from the Education Unit, Town and Country Planning Association, 17 Carlton House Terrace, London SW1Y 5AS.

THE FLEUR DE LIS HERITAGE CENTRE IN FAVERSHAM

In the United Kingdom the last few years have seen the emergence of an entirely new concept - the Heritage Centre - designed to do for towns what field studies centres have already done for the countryside, to enable everyone, resident or visitor, young or old, to understand, appreciate and enjoy them more

The Fleur de Lis Heritage Centre in Faversham is one of 4 now open. It is the only one to be created and administered by a local amenity society. The Faversham Society is one of 1,200 such organisations in the United Kingdom. They are voluntary organisations aiming to uphold decent environmental standards in their areas and are registered with the Civic Trust, which represents their interests at national level. So as well as having opened a heritage centre the Faversham Society tries to ensure that new development is of high quality and to protect historic buildings, trees, countryside and unspoilt coastline. It has undertaken practical work such as the restoration of the Chart Gunpowder Mills (oldest of their kind in the world) and, with others, has campaigned successfully against a new international airport on a coastal site not far away and also against proposals for yet heavier lorries - in the United Kingdom, at least 32-ton lorries cause quite enough environmental disruption.

At the Fleur de Lis the Society has harnessed a combination of colourful artwork, photographs old and new, and museum material to create a permanent exhibition giving visitors of all ages an idiomatic command of the rich, but neglected language of towns - their buildings, their setting and their social and economic development. Once acquired, this new skill will open up new worlds of discovery everywhere we go.



Fleur de Lis Heritage Centre, Preston Street, Faversham, Kent

First Heritage Centre in the South, the Fleur de Lis is deservedly popular with residents and visitors. In the restored coaching inn are colourful displays vividly bringing to life the town's long history. Behind the main building is a well-equipped hall for up to 80 people.

But there is more to it than entertainment. No one can plan properly for the future without understanding the past and the present. For this reason the Fleur de Lis aims to give visitors an insight into the qualities of architecture and town design that are needed to make a community attractive (as Faversham is) to resident, worker and shopper. With this insight they should be more able to play a constructive part in upholding decent environmental standards wherever they live or work.

To put the project in its context a word about Faversham is needed. It is 50 miles from London, it is a small industrial town, with a couple of breweries, an iron foundry, light engineering works and concerns such as a cannery and fruit-grading depot which reflect its position in the heart of the north Kent fruit belt, where some of the world's best apples are grown. It is also a small port, trading mainly in timber, grain and fertilisers. It has a long history and thanks to a number of factors this is still faithfully mirrored in its fabric, which has never suffered from the disruption of bombing or comprehensive redevelopment. More than 400 buildings, mostly of pre-1830 date, have been "listed" by the government for their architectural and/or historic interest, and there are many more recent buildings of almost equal value. The population of the town is about 15,000 and membership of the Society about 700.

When the Society was formed in 1962 there was no local history society in the town and it decided to fulfil both functions. As there was also no museum it decided to form a collection and the first permanent display space was leased in 1965 at the Maison Dieu, an ancient monument in the guardianship of the government. However, the collection rapidly outgrew this accommodation and the Society decided to seek premises of its own. With a low membership subscription of 50p (at the time) it had not accumulated any capital, apart from a few hundred pounds, but the Borough Council agreed to guarantee a loan. Its first attempt to buy a property - at auction - failed, but 10 months later one of the town's two breweries offered to sell it a redundant public house in one of the main shopping streets for the favourable price of £6,500. The offer was accepted and 3 years spent raising the purchase money.

By now European Architectural Heritage Year was on the horizon and the Society decided that as there was plenty of space at the Fleur de Lis it would create a heritage centre as well as a museum. A feasibility study was undertaken and on the strength of this the Arts Council of Great Britain offered the Society £10,000 of the £50,000 it had set aside for pioneer heritage centre projects during Heritage Year.

However, the Society was by no means home and dry. The building itself - a 15th century one with later additions - needed complete restoration and in addition the costs of conversion had to be met. In all, more than £40,000 was needed. So as well as raising money locally in all the time-honoured ways the Society sought grants from other sources. Most of its approaches were successful and substantial sums were offered by the Historic Buildings Council (by way of conservation grant), the Carnegie United Kingdom Trust, the Pilgrim Trust and the county and district councils. Robert Banister, FRIBA of Sittingbourne, was appointed architect and listed building consent obtained for the conversion. Design of the displays was entrusted as a "live project" to graphic design students of the Canterbury College of Art under the supervision of Roy Chambers, MSIA,ATD.

This arrangement had the triple advantage that it saved the Society money, gave the students practical experience of a "real-life" scheme, and enabled the Society to draw on a wide range of young talent. After being given a brief the students were allowed a free hand, Society members offering advice only when it was required. As a source of inspiration and display material the Society's museum collection proved invaluable, as did also its large collection of photographs, old and new.

The Heritage Centre displays are housed on the ground and first floors of the main building, which also accommodates a "local interest" bookshop stocking Society and other relevant publications, picture postcards and so on. In the cellars are museum displays, while the attics are used for museum storage. A big asset is the amount of ancillary accommodation, housed in an attractive 19th century building at the rear. This includes a well-equipped hall for meetings of up to 80 people, a kitchen and committee room. The total floor area is 5,750 sq ft, of which just over half is given over to displays.

Because the Centre aims to interest people in the whole of their urban surroundings the displays are not confined to "pedigree" historic buildings. They highlight buildings of all types and periods - and in their physical, social and economic contexts. It is a reflection of the riches of one small town that although the displays are so comprehensive the Society itself says that a visit to the Centre is not a substitute but only a starting-point for informed exploration of the area.

First feature of the Centre is an audio-visual one. Modest by some standards, but nonetheless effective, this is a single-screen programme lasting 10 minutes. After welcoming visitors to the Centre and explaining what they will see, it illustrates how anyone with a little skill and powers of observation can learn about a community's development just by looking at its form, street-pattern and fabric. There follows a "keynote" display illustrating 16 representative phases in the town's building history. All the structures are domestic in scale and still in use - from a 13th century hall house to a terraced house of the 1970s. This chronological sequence serves as an introduction to the other 27 displays, which are thematic. The development of the town and its fabric is traced by reference to such themes as mayors and markets, the fire service (particularly important in a town with many timber-frame buildings) recreation and entertainment, religious observance, schools, farming, industries and transport.

Used alongside photographs and art work to illustrate these themes is three-dimensional material - a crowding barrow from the brickfields and tallies from the hop gardens, for example. The Society receives no grants towards running costs and therefore an admission charge of 30p (15p for children, students and pensioners) is made. Visitors seem to regard the Centre as good value for money and their view has been endorsed by the English Tourist Board, which has described it as a model of its kind. As was hoped, the facilities appeal equally to residents and to tourists, and in the visitors' book local addresses rub shoulders with those from the rest of the United Kingdom and overseas. Despite its charm and character, Faversham lies well off the beaten tourist track and advertising is therefore of key importance. The funds available for paid promotion are slender but the Society exploits every opportunity of obtaining free publicity. It

now plans to open a Tourist Information Centre in the Fleur de Lis and this should help to draw visitors' attention to the Centre. Opened in March 1977, the Fleur de Lis Heritage Centre is unique in one respect. Though it is open throughout the year during normal shopping hours, it has no paid staff. Those who man it are all Society volunteers. There has never been any lack of these, even though Faversham is by no means top-heavy socially. Nor has the Centre ever failed to open, or open on time. This rather suggests that there is plenty of scope for similar arrangements elsewhere. Attendances since the Centre opened (in a nine month period) have been 4,000; perhaps not a very impressive figure in itself, but in excess of the Society's own estimate for the initial period, and commendable in a town which has no established tourist trade. Also encouraging is that admissions are being well maintained during the winter months.

The Centre is also unique in that any profits will be ploughed back for the benefit of the community. As there are no staff costs, every penny will be used for further environmental protection or improvement work.

The Fleur de Lis Heritage Centre, Faversham is open from 9.30 to 13.00 and from 14.00 to 17.00 hours on Monday to Saturday (closed Thursday afternoons). Party visits can be made at other times by prior arrangement, and in this case conducted tours of the town and/or light refreshments can be provided if required. The Centre is in Preston Street, three minutes' walk from the main-line station, with a half-hourly service from London (Victoria), journey time 70 minutes. For drivers, the M2 motorway is within two minutes' drive, and the main car park is within one minute's walk of the Centre.

SCHOOLCHILDREN AND PLANNING - JOINT PROJECTS

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Schoolchildren have, for some years, been involved in projects in which they examine local situations in terms of planning policies and procedures, although such work is usually observational and not based on real live issues. Alternatively parties of children have been used as fodder by planners, simply applying questionnaires and counting cars. This short article discusses ways of avoiding the two extremes just described by joint projects which are of direct benefit to both sides involved. Such projects are not easy to initiate but can be immensely rewarding if repeated. It concludes with a quick example of a joint project undertaken in Bristol.

As more and more people are demanding - and getting - the opportunity to participate in the planning of their environment, it becomes essential to think of "education for participation". The primary objective is therefore to prepare children for this particular aspect of citizenship. Following directly from this are various sub-objectives more normally used in school work. One wishes to give the child some knowledge of an area, of its past, present and future and of the forces which shape it. One will try to present the child with a range of techniques to use in relation to planning work - interviewing, observation and statistics - amongst others. One will also consider social abilities; encouraged by taking the child out of school, talking to people, working in groups and presenting conclusions. Finally, one wishes to see the child acting in a real-life situation which matters to him or her, getting involved in some issue affecting his or her environment. But I have as yet merely described the objectives in relation to the children, despite the title and the early emphasis on the benefits to the planners as well. From the planners' point of view the objective may also be to contribute to the education of an environmentally aware public, but that is unlikely to be a primary aim. The planners will be working to get some information, elicit opinions and form ideas about the area and problems upon which they are concentrating. Some important reasons for using schoolchildren will be that they often know "their" area better than the planners. They can provide their own information (eg on recreation for teenagers) and they can often get spontaneous responses from people who would otherwise never speak to "officials".

The selection of projects

Almost by definition, the project must relate to some topic or some area which the local planners are currently studying. The teacher should therefore try to keep up-to-date with the current issues and problems being tackled by the planners especially those in the area around the school. Projects can be done on other areas although unless they are of specific interest, eg the central area, the children are unlikely to feel sufficiently involved (we know they should be but they generally are not). The project can be part of a whole range of planning studies. If the planners are working on city-wide or larger problems then, to be realistic, a project will need to focus on just one topic such as transport or shopping. If the planners are working on a few streets then the project might happily cover a wide range of topics - housing, transport, health, education, environment, construction, recreation etc. Any combination between these two scales is possible.

I have, up until now, used only the term "planners" but this is really shorthand for a wide variety of people concerned with decision-taking about the environment. Projects can equally successfully be organised with architects, landscape planners and even local community action groups, civic societies etc. Again, good local knowledge is necessary if the teacher is to successfully tune in to any of the activities currently under way. Having identified broadly what is happening in your area and who is directing it, the next step is to establish contact. Generally it is better to make the initial contact informally and personally, using local contacts to get through eventually to the right person. Formal contacts, particularly the agreement of head teachers and chief planners, can be obtained more easily if an initial idea has been formulated first. One must make it very clear that one is offering a large work-force, willing to go out and attempt things without requiring teacher-training on the part of the planners. First contacts need to be reassuring (and the same applies if the planner is the instigator).

After chatting with the planners it should become more obvious what they are working on and where possible help might be given. It is probably better to avoid subjects requiring great accuracy, repetition, large samples and physically demanding work. One can concentrate instead on two general approaches. Firstly, there are a series of more subjective topics - townscape assessment, opinion-seeking surveys, perception studies etc where impressionistic results are quite adequate. Secondly, there are pilot studies in situations where the planners are uncertain whether to initiate a full study but merely want some guide to aid their main decision. Whatever the final selection might be it must be made carefully in relation to the age, abilities and interests of the children.

Developing the project

In order to ensure that the project is not just a cheap survey, the usual elements of project work need to be timetabled in. There should be an Introduction (best done by a talk followed by a trail around the area under study), Survey/Side Work (a whole variety of techniques are possible), Analysis (summing up the results of the surveys), Discussion (interpretation of the results to the children, placing the results in context), and Dissemination (passing the results on, in a suitable form, to the planners, publicity, exhibitions etc). I shall deal briefly with each of these elements.

Introduction - The talk is best done by a planner, guided by the teacher to those things which interest the children. It should cover not only the content of the whole project but also set the survey topics in the context of the history of the area and its planning. The opening trail is an excellent opportunity to practice using work-sheets and even knocking on doors. The task can be a simple overall evaluation of the area, rather than a main survey.

Survey/Site Work - I cannot deal here with all the techniques for all the different topics. There are, however, some general principles. Children work best in pairs and results can be checked by getting two groups working in parallel. One child can ask questions, another may do the writing/drawing. Rain is more of a deterrent to teachers than to children but be prepared with an alternative if work on site is impossible. Transport, especially the time it takes, is very important. All work should be handed out and collected on site, and suitably coded for recognition. The planners should help by providing most of the maps, sheets, questionnaires etc and should be present on most site visits.

Analysis - If you are looking at a few topics it is useful to get groups to deal with each. They are then responsible for collecting and analysing each other's work (encouraging tidiness) and work in small groups. The planners need not be present back in school for the analysis, provided that it has been agreed how to analyse the results. Some relatively agreed form of presenting results is also useful. As a rough guide, no computers should be necessary, but pocket calculators should not be banned when repetitive statistical work is called for.

Discussion - There is little to say about this because it is so dependent upon the actual content of the project. Generally it is of social benefit to encourage groups to talk about their "own" topics, and the planners' presence would be useful if not essential.

Dissemination - If the other elements have been done properly the work produced should basically be in a form useful to the planners. One difficulty of simply handing it over, however, is that work may be needed by the children for files on subjects and for internal or external examinations. Once everything is complete, there is also much to be gained by publicising the project, usually through an exhibition, to the local newspapers, radio etc. Dissemination is often forgotten, but certainly should not be.

Evaluation - It is very difficult indeed to evaluate the effectiveness of projects such as those described above. One criteria will be the feelings of the planners - whether they have received what they hoped for. Due to inexperience, however, their hopes may have been completely unrealistic. Another criteria will be the future involvement of children in planning but even if one were willing and able to wait for that to happen, it may be the result of other influences.

This, then, leaves assessment of knowledge gained and techniques learned. This is fairly easy, but just because it is easy it should not be over-valued. There are now no major planning issues which depend upon facts for their resolution. Planning is essentially about judgement and opinion, two things never adequately developed in school. They are, however, two aspects which joint projects can encourage, and they will benefit the child in many areas of life, not solely in relation to the environment.

An example

This example is of a project undertaken in Bristol, using an area called Bedminster, for which a local plan was being prepared.

I seem to be fated not to find an area with a secondary school roughly in the middle. Bedminster has no local secondary school and therefore four nearby schools were approached and a class from each was offered. The groups were all fourth form (14-15 year olds), one all boys, one all girls, two mixed; the boys potential O-level candidates, the others CSE candidates. There are benefits in working with at least two classes because if children work in pairs and repeat the topics, all information can be cross-checked from four sources. In Bedminster we therefore gave one large area each to two classes to study.

The topics were selected first by the planners and myself, and finally by the teachers and the children; it is no good walking in with a proposal survey on pedestrian movement if they have been doing that for a few weeks already! The final list was Housing, Townscape and Environmental Quality, Shopping and Recreation.

Each class did all four topics (plus a further one done by a small sixth form group on the handicapped) over a period of five weeks, using all their geography periods plus a few others to make up solid blocks for site work. After an introduction in class by one of the planners, there was an introductory town trail on site and work started. The work was done by walkabout surveys, interviews and door-to-door questioning using prepared sheets. Classes split into four to summarise each topic in detail while everybody also did general worksheet/awareness questions. At the end each class summed up work from all four schools on one topic for an exhibition.

It would be unfair to suggest that it was simple to organise. It was a mistake to have four classes and it was a miracle that there was only one occasion when I was supposed to be in three places at the same time. Despite this, the effort I needed to put into it was considerably less than for the first such project last year and I would argue quite strongly that further work could be done more easily with comparable, or even better, results. There is little doubt that the children enjoyed it all and learned a lot about many things - from statistics to how to deal with crotchety old ladies. The teachers found it valuable and would like to follow it up, and the planners now find themselves much more confident about dealing with schools.

One acid test remains, however. In relation to the effort put in, could the planners have got better results on their own? Their feelings are that the project just broke even and, if I am right about the improving input/output ratio, we now have the basis for some very profitable work.

ST MARY'S CENTRE, CHESTER

This new Centre is housed in the redundant parish church of St Mary-on-the Hill, Chester. It is available for all Cheshire schools and colleges for use on either a day or residential basis. Although no residential accommodation is provided in the Centre, this is available at the nearby Chester Youth Hostel (YHA) at Hough Green.

It is hoped that the Centre will eventually provide the following facilities, among others:

- a classroom for preliminary briefing and follow-up work with educational groups visiting Chester, including the use of audio-visual equipment;
- a resource bank for materials to support fieldwork;
- a "service station" for groups engaged in fieldwork in Chester;
- a meeting place and workshop for teachers and others interested in urban studies;
- a display centre for work produced by pupils, including art, drama and music, open to the general public;
- an information point and access point for services available for educational work in Chester;
- a teaching annexe to the Cheshire County Record Office;
- a "local history" centre for the county.

The Centre for educational use is housed in the south aisle and chapel of the church. Eventually the rest of the church, which is a listed building receiving government grant aid, will be open to the general public, but this will complement rather than detract from its use as an educational resource. Various other departments of the County Council will be responsible for mounting exhibitions etc in the building and these exhibitions can then be made use of by visiting educational groups.

Availability

Initially the Centre will be available from 9.00-17.00, Monday to Friday, during term time and will not be available during weekends or school holidays.

Cost

There is no charge for the use of the Centre or the Warden's services.

Although the opening of the Centre was officially scheduled for spring 1978, two county primary schools were invited to visit the Centre in October 1977 to undertake pilot courses. Each of these courses lasted for three days. Daytime work was based on the St Mary's Centre whilst evening work facilities and residential accommodation were provided by the Chester Youth Hostel at Hough Green, only 20 minutes walk from St Mary's.

The two schools were Greenfields County Primary School from Winsford and the Aldersey CE aided Primary School, Bunbury.

Greenfields chose as their subject the broad theme of "Chester - the County Town". A great deal of discussion went on between the staff who were to bring the children and myself as to how best we could approach the subject. Twenty-four children were scheduled to come so it was decided to split them into three groups, each group to look at the operation of one specific service at county level. These same groups would then follow up back at school by investigating the operation of the same services at a local level, in the Winsford area.

The three services chosen were "Education", "Fire", and "Police".

The "Education" group's programme included a look at teacher training, a visit to a middle school in Chester, an interview with Mr Tomlinson and work on the archives of Chester schools in the City Record Office.

The two other groups followed similar types of programmes. Amongst other activities, the "Fire" group studied the archives of the Earl of Chester's Volunteer Fire Service, hunted for fire insurance plates in Chester and visited the Chester Fire Station, whilst the "Police" group visited the Cheshire Constabulary Headquarters, interviewed a retired policeman who had served in the Chester City Police in the 1920s, had a conducted tour of the County Courts building and studied Quarter Sessions Records and archives of the Chester Police Force.

The timetables for all three groups were very tightly scheduled but these were pilot courses and we were anxious to try many different approaches during the three days.

Common to all groups were sessions spent working on original archive material in both the County and City Record Offices. This would not have been possible without the ready co-operation of Mr Redwood and his staff in the County and Miss Kennett and her staff in the City Record Office. In all cases the work was based on work-sheets which had been prepared in advance by the teacher in charge of the group. This had involved each teacher in spending a considerable time before the course researching and selecting material with the help of the archivist and myself.

Partly as a result of the very successful use made of the County Record Office by the pupils from both Greenfields and Bunbury, Mr Redwood, the County Archivist, has agreed that one function of St Mary's shall be as a "teaching annexe" to the Office. The Centre is well placed for this, being only 50 metres or so from the castle, where the Cheshire Record Office is housed. It will be possible to have material brought to the Centre, in the custody of one of the Record Office staff, so that class work may be carried out on the material. This has been a facility which many teachers have wanted for a long time. Not only will schools be able to study original source material relating to Chester but, for instance, a village school carrying out a study of their village will be able to book the Centre for a day to look at any material deposited in the Record Office which relates to their village - such items as tithe maps, census returns, parish registers, churchwardens' accounts, directories, school logbooks, etc. Copies of the material can then be supplied for further use back at school.

Also working from St Mary's as a base, small groups of pupils can be taken to work in other depositories such as the City Record Office, with its wealth of material on Chester itself, or the City library with its excellent collection of old local newspapers.

One feature of the Greenfields programme, a feature which they had developed over the past few years during visits to the Beeston Outdoor Education Centre, was a series of interviews and it was felt that these were of particular value in bringing the children "face to face" with people involved in the services being investigated. All the interviews were based on questions prepared beforehand by the children.

Bunbury School chose a rather different theme, their subject being "Houses and Homes in Chester". This was designed to fit in with a project that they were carrying out at school on homes and families through the ages. Before coming to the Centre, the children investigated their own family trees and the homes they live in as well as covering background studies on Roman and Georgian family life.

The St Mary's Centre is now generally available for schools and colleges for use in the way which best suits them. The initial publicity, which has been circulated to all establishments, outlines eight functions but teachers will no doubt be able to suggest many others:

- a classroom for preliminary briefing and follow-up work with educational groups visiting Chester, including the use of audio-visual equipment;
- a resource bank for materials to support fieldwork;
- a "servicing station" for groups involved in fieldwork;
- a meeting place and workshop for teachers and others interested in urban studies;
- a display centre for work produced by pupils, including art, drama and music, open to the general public;
- an information service and access point for services available for educational work in Chester;
- a teaching annexe to the Cheshire County Record Office;
- a "local history" centre for the county.

The Centre is available for use on either a day or residential basis. At the moment it provides a classroom for up to 40 pupils, toilets (including provision for disabled) and basic catering facilities.

Other departments of the County Council will eventually be responsible for mounting exhibitions etc, in the rest of the building and these exhibitions will be available for use by visiting educational groups.

Chester can provide a base and a starting point for so many different types of study. It is hoped that schools and colleges will make maximum use of this new Centre which has been provided for them. Anyone wishing to use it or requiring further information should contact the Warden:

St Mary's Centre
St Mary's Hill
Chester CH1 2DW
Telephone: Chester 317546

NOTTING DALE URBAN STUDIES CENTRE

The practice of an idea

Notting Dale was called a "plague spot" by Charles Dickens in 1851 and some hundred years of redevelopment and clearance, spanning many of the planning and architectural orthodoxies of this period, has left it little better! An area segregated from the richer parts of its parent borough by a main road, and coralled in concrete to the North and West by the concrete bulk of an elevated urban motorway. Within these confines lies some of the worst housing in 20th century Britain, overcrowded and overpriced legacies of Victorian speculation, now notorious for its past of rack-renting landlords and a present of racial conflict. Where demolition and reconstruction have been initiated the formal barracks of the 1940s and 1950s and the sterile, high-rise estates of the 1960s, have proved to be qualitatively inferior in many ways to the small, terraced housing that they replaced. Many shops and pubs have been demolished and old neighbourhood networks have been fragmented, the human aspect of this well reflected by the pockmarks of blight that scar the neighbourhood.

In the face of the intransigent character of the area and the well-publicised failure of many of the interventionist policies of the last decade, both here and in America, the role of an urban studies centre might seem prematurely redundant! But this view rests on an essentially static idea of cities, where an over-abundance of structuralist sociology has almost rendered it beyond the ken of those who actually make up the city and where educational demarcation has produced a multitude of partial insights, neatly segregated by subject boundaries.

If the city as a mirror for economic and social values, as a dynamic political process of many levels, as an example of distribution of most things both historically and immediately, is to be understood and perhaps changed, then the ways for doing this must surely be equally dynamic and eclectic in character. Particularly they must flout some of the old notions that the process of education and the "real world" are somehow separate or that the realms of subjective experience are somehow inferior to the "objective fact". Only in these ways, by exploring new possibilities for the understanding of and participation in the urban environment, will the role of urban studies centres be anything other than merely registering the status quo.

That the Notting Dale Centre should be funded by a Harrow School Trust, very much part of the status quo, is paradoxical and peculiarly British. This Trust decided to set up the centre in 1974 and since then has afforded us almost unlimited independence and generous financial support. Other centres constrained by their funding sources have found themselves developing very differently, although the character of their respective areas would seem to be highly significant too. It would certainly be true for us that our position in a cul-de-sac created by the elevated motorway, has influenced our posture within the neighbourhood to some extent. A position on the busy main road of the Ladbroke Grove might well have influenced us towards advice and "shopwindow techniques" rather than the lower profile, collaborative style that we have developed. The very

architecture of the building, a Victorian rectory, has contributed towards our practice. The rooms are many and varied in shape and size, this in itself inviting small groups and diverse uses.

The main publicists for the idea of urban studies and the possibility of centres has been the TCPA Education Unit. They defined 3 major uses for such centres - as a resource bank for the community, as an educational centre and as a place where planning issues might be located. We have certainly developed in these ways but the different initiatives are almost totally interrelated, so that our basic resources often are the reason for contact with the community, and when this develops into a more collaborative association, this is then the informing medium for the work that goes on with schools and colleges.

But for the sake of descriptive convenience the 3 areas will be treated separately to begin with, although their integral relationship will continually be made apparent.

In physical terms as a basic resource centre, we offer a very accessible range of facilities that enable people to communicate more effectively. We have offset printing machines, photocopying facilities, stencil-cutting equipment, photographic darkrooms, a wide range of recording and reprographic hardware and a reasonably large supply of the necessary software. In addition the centre's secretary acts as a community secretary, helping tenants associations or planning groups with basic typing and duplication. This in itself is not unusual, the distinctive difference appears to be the very real access that we give to people, not merely to the machine but to learning the processes involved. In this way people can become self-sufficient and use the centre whatever else is happening or if the staff are engaged elsewhere. The only cost involved in all this is for any software used so that we can recoup our supplies. All of this might appear mundane but our experience is that all kinds of local initiative and energy can be lost for want of the means to enable things to happen. To facilitate such processes, so that people at least have the means to begin to impinge on their urban destinies is a beginning, not least when dealing with the massed sophistication of bureaucracies both local and national.

What has tended to happen from these contacts is that people continue to use us regularly in the limited way described above or the issues that they are involved in become a shared responsibility. This often happens casually rather than in the formally instituted framework of a community development project or action team. Groups have asked us to be involved or we have suggested possible tactics and the range of local and London issues that we have become involved in is immense, often demanding a level of expertise that we do not possess in, say, planning law or development policies stemming from particular authorities. In these cases we can act as co-ordinators, making sure that groups contact the right people, facilitating potent action. Sometimes the local planning authorities or housing departments enlist our local knowledge, but on the whole we have found ourselves aligned against the insensitivity of the planning machines in London. A list of some of the issues indicates our concerns in particular and our general regard for quality of life and peoples' attempts to take control of it in small or large ways.

a. Planning enquiry regarding the fate of a large Victorian building within a redevelopment area. The local feeling is that the building should stay (as a nice, warm building) and be converted into a community centre to remedy the conspicuously deficient estates into which housing policies have forced them.

b. Local action on the opening up and transformation of the one local park of a few acres. There is little public open space in this part of the borough and what there is, is often a sterile and, hence, underused area.

c. A forum concerning the introduction of jobs back into the area. This is an initiative by the Council and we shall be playing a part in this.

d. Working with the tenants association of one estate to remedy some of the inadequacies that they have isolated. We helped them in this by the construction, delivery, collection and analysis of over a thousand questionnaires. This was done with the help of student volunteers and then turned into a large report. The local press gave us a great deal of publicity and, allied with lobbying of councillors, produced some incremental advances on the estate. But the glaring deficiency of the estate revealed by the questionnaire was the lack of a community centre from which and through which social organisation could be extended to groups like old persons and single-parent families. This has resulted in an alienated and isolated population, which often does not know its immediate neighbour, well compounded by the bizarre architecture of the high-rise blocks.

The tenants association decided that a hall must be a priority and for over a year we worked with them on this. It involved a great deal of lobbying and application which has culminated in the granting of a £55,000 urban air subsidy. The tenants had been asked to choose a style of building and its facilities, with the aid of architectural students who drew up a variety of possible sketches. A committee of tenants was elected after this to employ an architect and to manage the project, which will be primarily built by the tenants themselves.

All these experiences have been quietly collaborative, enabling people to do things more effectively and in this fashion gain some control over their environment. It is also the relationship which allows us to transcend some of the barriers between community and education. For the very issues that we are involved in are the substantive concerns of students doing urban studies. It is their neighbourhood and their city which is the starting point for investigation, and, perhaps even more important, their legitimate knowledge and perceptions which are the medium for investigation. In this way urban studies is an extraordinarily democratic way of looking at the world, for central to its processes is the human being using his or her senses, experience and knowledge in the pursuit of understanding. Obviously this would be defined as subjective within traditional notions of knowledge but my contention is that cities, their buildings, traffic, jobs and so on, are essentially human relationships. To begin to understand or challenge prevailing ideas in the urban scene requires human techniques, not recourse to aprioristic notions or positivist methodologies. Much of the deterioration in city life has been due to the zestful application of such ideas and methods.

In urban or local studies one is using peoples' perceptions and investigations of the built environment to begin to understand how it works in human terms. Not only how people marooned in the follies of the 1960s feel, not only in laying bare the qualitative deterioration of street life as perceived by those who live it, but also in coming to terms with the people who made decisions, their motives and shaping ideologies. These cover a range from national and local politicians, businessmen and their companies, bankers, architects, planners and the whole army of people-managers that has grown up to cope with inner city collapse. Here, we are dealing with power and the forces that shape our society and our cities. It is not a long step from looking at a rather squalid house in Notting Hill, to asking questions about housing finance, speculation and priorities within our country. A look at the madness of London rush-hour traffic soon poses the fundamental questions of energy, freedom, jobs and alternatives. In short, urban and local studies will inevitably involve a "political" investigation unless it contents itself merely with the shapes of bricks and the profiles of streetscapes.

One other point is worth making here. If students are to be involved in urban studies then it poses some challenges to traditional schooling on 3 counts. One, it is an eclectic way of looking at the world which involves the historical, the economic, the political, the architectural, the sociological in equal proportions. This obviously challenges some of the traditional subject demarcations and certainly has no pretensions as to having a specific epistemology, which most subjects seem to have worked out for themselves in their more philosophical moments. Two, if urban studies is concerned with making people more aware and potent in their world, strong enough to participate and not merely be recipients, then the ethos of such work must surely be different. By this is meant that the work done by school students should be autonomous, generative and often collaborative. If they are not in the habit of forming their own learning strategies, or at least the tactics, or are unused to creating knowledge for themselves, then the business of participation as an adult will be even more difficult. In the final analysis one only learns by doing and these differences in emphasis are surely a beginning for the student. Three, if one recognises the essentially human quality of the city and the central importance of the "intelligent senses", then there will often be no right answers as such. One will be faced with a plurality of response, a variety of values and a proliferation of political stances. Within this one has to come to some personal view, recognising the constraints that are operating, but the value choice arrived at is hardly amenable to a mark out of ten!

To allow this modus operandi means that the resources and facilities available to students will have to be rather different from traditional textbooks or library volumes, although these still play a part. In fact it means the development of a local bank of resources which allow the mobility and choice implied by the descriptions above. At the Notting Dale Centre we have collected together a variety of resources which are continually being added to by the work of students and through our work with local groups. These include the following:

- a. A range of maps from the 16th century to 1977 zoning maps - indispensable tools for charting physical change.
- b. A range of historical archives on building speculation, housing styles, social history and medical statistics.
- c. A collection of street directories through the last one hundred years, to chart occupational and residential change.

- d. A growing collection of vernacular histories which we have taped from the recollections of old people who used to live or still live in the area. These we print and sell in the local shops and they would seem to be indispensable aids both in terms of rectifying the balance of historical accounting and in providing a qualitative sense of the past which can often transform into agenda for the present.
- e. Demographic material, broken down into ages, sex, race and occupations. These need to be quite specific, often to the size of electoral districts or particular estates. Often one has to find this out independently.
- f. A continually growing collection of slides and photographs taken locally or illustrating examples of housing design, estate lay-out, new town policies from outside of the locality.
- g. Planning material of all kinds which covers a multitude of documentation:
 - i. official publications from various authorities;
 - ii. committee reports on specific issues;
 - iii. reports from officers to elected members;
 - iv. public protest letters.
 - v. consultation documents.

These are often difficult to get hold of but-in many ways are the raw material of planning and political processes and as such, are essential to understand how they work.
- h. Specific packages of material making up case-studies of different issues like the motorway, the development of a blight area or the attempts of a group to halt demolition of a building by the Council.
- i. A small library of specialist publications, ranging from the grand theory debates to small scale descriptions of cellular renewal in a British town.
- j. A range of periodicals covering housing, history, architecture, tenant politics, and so on, as well as local newspapers which form an invaluable resource in themselves.
- k. A range of aerial photographs.

This bald description of primary and secondary materials gives little sense of their use or how long it takes to both accumulate and make accessible their contents. The language of bureaucracies and professions is often esoteric and needs to be translated for lay and student consumption. Equally, such resources need to be complemented

by a range of hardware such as cameras, tape-recorders and video, to allow their official or unofficial statements about the area to be investigated through the experiences of the students and of the people who live locally. The counterpoise between the Hard and Soft City as defined by Jonathan Raban in his book of that name, gives a sense of the possibility here. The Hard City is the city of statistic and zones, whilst the Soft City is the city of dreams and personal perception. Students need to work at the interface of these two.

Most of the groups that arrange to use the centre come as a result of classroom initiatives rather than curriculum organisation on a school or college scale. They come from a heterogeneous subject background, mainly from local schools, junior and secondary, as well as from universities, polytechnics and teacher-training colleges. On the whole they come for a significant period of time, say a whole academic term, for a half-day per week. We tend to introduce them to the urbanisation of West London through slides, exploring the more modern effects by means of an urban trail. After this introduction though, the onus is very much on the students to decide their focus of interest and strategies for approaching it. Here we are very much within the constraints and habits of their school experiences, the limitations of courses as defined by a teacher or examination syllabus and their own sense of what constitutes "work" or "knowledge". But this stage of making a choice seems important to us as it sets the atmosphere for the more autonomous and mobile context that they are working in. Often they choose to explore areas that complement their school work in some way, but equally often they will opt to investigate something with no obvious subject connection. So that geographers may find themselves immersed in the social history of the 19th century in order to gain a sense of that dimension of change, whilst an economist finds himself working through ideas of defensible space in modern estate design, to eventually arrive at some idea of the cost of certain policies.

The range of work done by the different age-groups is vast but it is interesting that be they 8 year olds or post-graduates the focus of research tends to be similar. In fact we have had 8 year olds and post-graduates looking at "quality of life" at the same time and ending up with a design solution using wooden blocks and felt-tip pens on a white topped table. If anything the children were more thoughtful and creative than the adults! Sometimes the work is fairly traditional "fieldwork" but at other times issues come alive in a fairly radical way. Some secondary girls using a video camera to record the plight of old people on estates became so involved in the issues raised that their work was subsequently used by the tenants. This obviously raised questions about the involvement of students in their affairs and challenges the notions of the impartiality of teacher or the curriculum. Both those claims for objectivity would seem naive but a very real and valid fear of children being subjected to proseletysing remains. But within local studies it is the diversity of "fact", fiction and fantasy which prevails and the aim is to allow the student access into its ambiguities, for that surely is the stuff of the real world which we operate in. Most research on adult knowledge of politics or planning reveals a high degree of basic ignorance and these techniques and resources allow young people a chance to begin to understand the issues and postures that dominate their world. How else will our habitat be improved?

Sometimes when school-children are in the Centre, people from the Planning Enquiry are duplicating evidence whilst some local tenants are meeting their newly appointed architect over the new community hall to be built. Often the adults and children talk, and the boundaries between home and school, education and life seem to dissolve away. This ought to be the model for an urban centre, where issue-based school work is concerned with the same things as the working adults. That is the stuff of urban studies, both in its micro- and its macro- concerns. If the city is to be viable and a good place to live, people must know how and why it works so that they can impinge on it and perhaps transform it. The questions raised by this are challenging but they must be met. If they are avoided, then this very avoidance poses even more fundamental questions for the future of our cities and our society.

Notting Dale Urban Studies Centre
Harrow Club
189 Freston Road
London W10 6TH
Telephone: 01-969-8942



Preparing a display and presentation for other members of their class.



Children from Notting Dale Urban Studies Centre
preparing an urban trail.
Discussing the impact of an urban motorway.

STEVENAGE URBAN STUDIES CENTRE

Stevenage Urban Studies Centre, opened in 1974, was the first of its type in Great Britain and forms a part of a series of environmental education centres in the county of Hertfordshire. The Centre was established in response to ideas put forward by the Town and Country Planning Associations' "Council for Urban Studies Centres" and to the growing need for a centre catering for outdoor work in an urban environment. Stevenage Urban Studies Centre has been established to cater for primary and secondary school courses. A specialist teacher works with teachers using their primary school as a base from which to work, but the area and number of schools visited is limited to Stevenage and its immediate surroundings. Demand for courses from primary school teachers has risen steadily and activities range from studies of housing areas to the organisation of refuse disposal and studies of an issue-based nature, eg demand for recreation activities. Wherever possible people involved in local work are asked to work with the children and the emphasis is upon the children gaining knowledge and experience at first-hand.

Secondary school groups from all over Hertfordshire use the Stevenage Urban Studies Centre as a base for urban work in Stevenage and the surrounding settlements. Normally the groups use the Centre for a period of 1-14 days depending upon the study they are undertaking. The teaching and organisation of the course is usually carried out by the Director of the Centre or by the school's teacher. Either way materials are provided from the extensive bank of resources held at the Centre. The materials are prepared by the staff which, at present, include a director, an assistant, a seconded student and a secretary.

Stevenage Urban Studies Centre is financed by the Hertfordshire County Council Education Authority and the Director is also an advisory teacher for environmental education with responsibility for geography. This means that he organises a number of courses for teachers of geography besides those in-service training courses for urban studies run at the Stevenage Urban Studies Centre. Particular interest has been shown in the use of computers for geography and the Stevenage Urban Studies Centre has been able to help prepare data-bases and provide information for a number of programmes. These interests reflect the work with school teachers in the county but Stevenage schools and teachers have benefited in a number of ways. Stevenage Urban Studies Centre has been responsible for co-ordinating the work of a number of local groups to help teachers in the production of materials suitable for locally-based environmental studies. Numbered amongst these materials are the Stevenage Old Town Trail, Fairlands Valley Park booklet and guide and a number of other pieces of work. The local agencies include the local museum, library, Borough Council and Development Corporation, and by co-operating with teachers it is possible to prepare relevant high quality materials with the assistance of many people. This role of co-ordination is an important function and one likely to be developed further.

Being located in a developing new town has meant that Stevenage Urban Studies Centre has been able to monitor the growth of the town and develop courses linked to this development. One particular course was developed to form part of a public consultation exercise concerned with the proposed expansion of Shephall neighbourhood - an area known as Sectors 4 and 5 (Ref. to Map 1). Stevenage Development Corporation helped with materials

for the course and one of their planning team was sent along to help give the first lecture of a two-day course. The course was planned as a practical exercise with the emphasis being on the field-work and the preparation of a plan to show how the area might be developed. The planner from Stevenage Development Corporation was able to outline some of the problems which might be encountered but apart from that the students worked in groups of six or seven without very much direct guidance. Advice was given when requested but it was intended that the students should develop their own ideas. The objectives for this particular exercise were:

- a. to develop a local plan linking a new development to the existing structure of a town and
- b. maintain the identity of Aston, the village affected;
- c. to indicate to the students the problems with planning a new housing area on the edge of a town;
- d. to encourage the students to use the skills they have already learnt in traditional subjects such as geography and apply them in a problem solving situation;
- e. students were encouraged to preserve areas of interest and existing hedgerows and trees.

The course was planned in the following way:

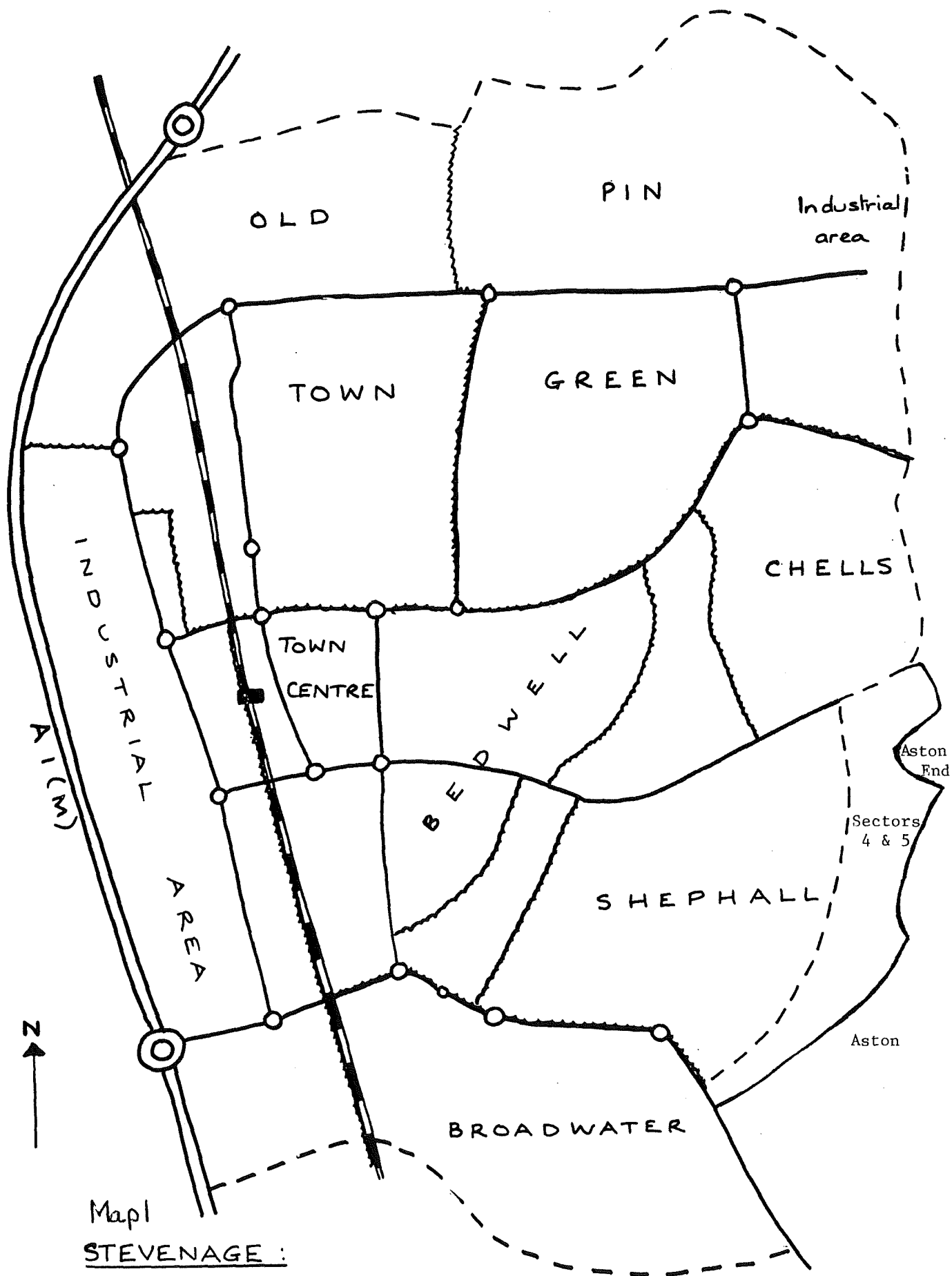
Day 1 Introduction by planner from Stevenage Development Corporation.

Familiarisation with the simulation. A full brief was given to each student with detailed maps and information.

Fieldwork and collection of data for the exercise.

Day 2 Check in to assess progress so far and identify areas where more information was required. By mid-day all the material was to be collected and work was to begin on the collation of results. During the afternoon the plans for the area were to be prepared and a written report submitted. At the end of the day a plenary session was held to discuss results obtained and to consider the reports prepared by each group.

An example of a report and map prepared by one of the groups is given below:



Map1

STEVENAGE :

Main roads and neighbourhoods

Roads

The two main roads were dictated by the natural valley running through Sectors 4 and 5. The largest road (A) was kept to one side of the sectors. This was for two reasons the first being the need to form a barrier between the new urban development and the existing rural area. The second reason was to enable the school-children to reach their primary school/infant school without crossing the main road (A). Road (A) was also designed for any through traffic and road (B) was designed for traffic wishing to get to the west side of Sector 4.

To prevent traffic using road (B) as a through road and "T" junction it was created to deter traffic from using road (B) instead of road (A).

The minor roads were designed so as not to incorporate blind bends, cross roads and multi-road junctions.

Housing

On the map we did not distinguish between the different types of houses which are to be built, eg semi-detached, detached. All the houses on the east side of the main road (A) were allocated as private, self-owned; all houses on the west side of the road were to be allocated as council-owned houses.

Pedestrian - cycle; horse (paths)

Zebra crossings were placed by the primary schools and at the shops. This was because at the school the children would need to cross the main road (B) and at the shops there is obviously a large amount of pedestrian activity. We provided pedestrian access to Shephall through a footpath and a cycle track. This was mainly to enable school-children to get to the secondary schools in Shephall and also access to amenities. Cycle paths were not thought necessary due to the extensive road system that was to be built.

A bridle path was to be constructed around the recreational area.

Amenities

It was felt necessary that a clinic-cum-community centre was built next to the shops and car park on the main road (B). A primary school was provided for the children of the new estates. Two public houses were developed to cater for the people.

The public house in the north was a preserved Elizabethan cottage with a thatched roof.

In the south a recreational area was to be developed to provide for the residents in the vicinity. The recreational area had was provided with a car park which had monoblocks. Three underpasses were built to enable bridle ways and public footpaths to cross the main roads. The primary school had swings and other facilities for the school-children and also they would be open at other times, ie weekends.

Buffer zones

The buffer zones were constructed with open recreational space and trees. The recreational area in the south of the area also acts as a buffer zone. These buffer zones were to prevent the new development expanding further on to the rural areas. It also acted as a screen to hide the new development. The buffer zone in the south was constructed there so Aston did not look down on a development area but a recreational area.

The critical and demanding part of the exercise was for the students to collect information from a variety of sources, ie local residents, field survey, local maps and other data, to assimilate the information and then to come to a reasoned conclusion. This simulation was highly successful from a number of different points of view:

- i. It brought the students into a situation where they had to use practical experience already gained in a real situation.
- ii. They had to work with people they had not met before and they had to interview people which many students had never done before.
- iii. All the students were more involved in this exercise because they knew that the area was going to be developed.
- iv. The results gained on paper and verbally were better, according to the students, lecturers and teachers than had been gained previously in more traditional fieldwork.

This example of a course is an example of one type of work being carried out by the Centre, but a large number of courses are less detailed and make use of trails and prepared units of work. These are useful but can lead to repetition and stereotyped courses for schools if they are not used carefully.

A particularly rewarding venture has been the work of Stevenage Urban Studies Centre in promoting Letchworth Garden City Corporation's "Town and Country Tomorrow Competition". This competition attracted entries from more than 30 schools in Hertfordshire, all of which looked at ways of improving the built environment in their local area.

Looking back over four years the work of Stevenage Urban Studies Centre has developed rapidly with many schools making use of the facilities offered. The future looks extremely busy in the field of in-service training for teachers in the field of urban work for school students and in the field of co-operation with local groups. The demand is present and growing and one hopes to see more urban studies centres developing in other parts of the country.

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THE BRISTOL TOWN TRAIL

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The Bristol Towntrail, first published in the summer of 1976, arose from the three-fold set of interests, ideas and specifically educational aims.

Firstly, the Bristol City Docks had become increasingly the focus of much public interest as proposals were being made both by pressure groups and by the Planning Authority to redevelop and revitalise this neglected area of the city. The intrinsic attractions of this unique area and its historic importance in the growth of Bristol held for me a personal fascination.

Secondly, I felt strongly that children living in Bristol should be introduced to this area and given the opportunity to experience its special character not only because of its historic importance as the very centre of the economic development of the city until quite recently, but also to see it as it is now and perhaps to consider its future.

Thirdly, the great variety of architectural, industrial and visual detail and contrast within the docks made it an ideal place for exploring and stimulating environmental experiences of many kinds.

The aim of the Towntrail from its very inception was quite specific. It was designed for children between the ages of ten and thirteen partly because this is the age-group with which I am most concerned, but more importantly because it is at this age that children appear to be most curious about the world around them and because the flexibility of time-tabling within schools at this stage makes the whole exercise feasible. The underlying theme of the Trail is to provide the stimulus for detailed observation of the features of the townscape in order to develop skills of visual awareness whilst at the same time attempting to give the opportunity for critical evaluation and appraisal of the features observed.

Fundamental to the Trail is the notion that visual literacy and the ability to express personal feelings about our surroundings are vital to the future development of our cities. Most of us, after all, live in an urban setting and the quality of the built environment has a profound impact on our lives. Furthermore, everyone, regardless of age, ability or experience can and has the right to express their opinions about what affects them so deeply.

The structure of the actual Trail emerged quite naturally from these precepts. All factual information about the area was quite deliberately omitted from the trail booklet as a large amount of written information would have detracted from the main aim of observing and evaluating. Notes providing more factual and historical background to the Trail were made available to teachers to use as appropriate to their needs. The route itself was chosen firstly to give an overall view of the flavour and character of the area and secondly to include as many diverse elements of the urban scene as possible. Many of these elements such as contrasts in housing, building materials, scale, shopping facilities, street furniture and others are in fact features which are found in all townscapes and to this extent the ideas embodied in the trail are relevant to all urban

environments and not necessarily exclusive to this particular area. It was very important, also, in the original planning of the route to provide good stopping and vantage points with linking walks, to make the Trail a reasonable length bearing in mind the age of the children and the time available to them in a normal morning or afternoon session and to make the Trail as safe as possible from the point of view of traffic.

The Trail booklet was designed to be used as an "on site" work-book for individual children and exercises were therefore devised for them to make their own sketches, to fill in details on outline drawings provided for them and to record their observations and feelings as they walked round. An evaluation score-card was included to record the children's direct, emotional responses to a particular feature or group of elements. A simplified map of the route and an aerial photograph of the whole area were included to give the children a greater understanding of how the chosen route fitted into the wider context of the city.

The aim was to keep the children fully involved in the Trail whilst at the same time constantly drawing their attention to isolated features to develop sharp observation of the individual elements which combine to shape the total environment rather than the hazy, wide-angle way in which we generally view our surroundings.

Emphasised at the beginning of the Trail is that it is merely a series of suggestions to help the individual select items from amongst the visually crowded townscape. With any group of children, and indeed adults, there will inevitably be a range of different interests and these should be followed where possible. On discussion with many different groups of children after the Towntrail I have been unable to draw any real conclusions as to what items were most interesting or most boring. The most that can be said is that there is something for everyone within the Trail and responses to it have been as varied as the individuals making those responses. This is in fact backed up by the way in which the Trail has been used by other teachers in Avon. In many cases the Trail has been used in its entirety either as part of a larger study of the docks or as a purely sensory experience. In other cases many of the ideas of the Trail have been used either as single feature studies such as pattern, shape and texture, or the Trail has been used as a model for trail-making in the children's own local environment. In many other cases it has provided the stimulus for a new way of looking at our surroundings for those who have previously been involved in purely historical exercises. This is how it should be. The Towntrail is, however, being used and a second edition has recently been printed.

A second, more comprehensive Docks Trail is currently being devised which would be more specifically directed towards the development of the area. The opening of a new Industrial Museum in one of the disused warehouses makes detailed study of this area more possible and it is hoped that this Trail will be available for use in the early summer.

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Spot the Shops



Shopping in Redcliffe Hill



Are there any shops here that surprise you?
Are there any other shops that you would expect to find in a parade of shops like this?

List three everyday things that you would not be able to find here.

Do you think that the people living in the flats round here would be able to do most of their weekly shopping in these shops?

Tracker's Notes



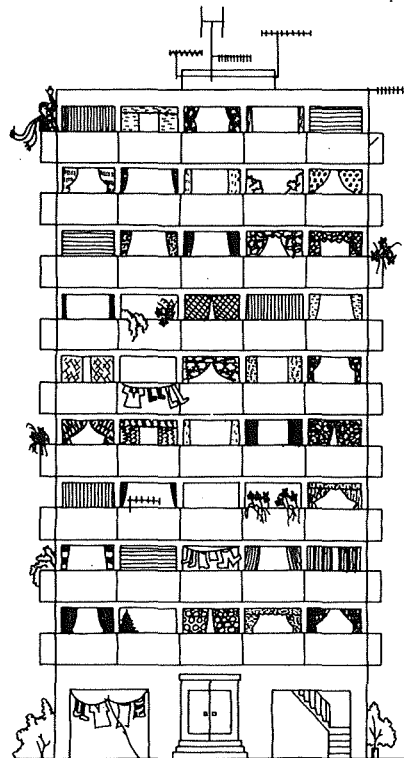
Walk around the corner into Commercial Road. On your right you will see the entrance to a big block of flats. Go through

and you will find yourself inside the flats. (You are now behind the shops you were just looking at.)

Flats



1. Would you like to live here?
2. What do you like about them?
3. What *don't* you like about them?
4. Would you like to play here?
5. Could you play all the games you usually play? If not, what can't you play?
6. There's a nice view from the top. Would you like to live up there, or down near the ground?



GAMES AND THE ENVIRONMENT

(reprinted by kind permission of the Bulletin
of Environmental Education)

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Introduction

There used to be a credibility gap concerning the use of the word "game" in education; in some places there is still suspicion of the word, if not the idea, but overall the last five years have produced a remarkable growth in the development and use of simulation ideas in general.

One of the prime reasons for this has been the motivation effects that games and simulation seem to have. Even the fiercest critics of the technique offer no real criticism on this front, save that it is dangerous for children to become "too involved" (a view which would scarcely be seen as a large danger by those who struggle daily with general apathy to all classroom activity). Since games and simulations usually involve group activity, discussion, and problem-solving their impact on participation in the classroom is usually self-evident. Some teachers are happy to work with them for their value in relation to communication skills and group dynamics alone.

But there is another perspective to their use. Their style of learning can be allied to distinctive purposes in terms of content: research already shows some indication that simulation is more effective than other methods in teaching about particular things.

It is not factual content to which this applies (though some exhaustive American studies have suggested that simulation can achieve factual learning at least as well as more expository methods) but to the realm of system of process; and to the understanding of the decision-making situation.

Hardly surprising, therefore, that such a technique should be invoked in the attempt to understand the environment. In a decade when it is increasingly realised that the environment needs more than just a descriptive approach, the simulation of man-environment situations can hopefully aid the development of situations and hopefully aid the development of a committed and knowledgeable student at all levels from primary to postgraduate.

But perhaps even more crucially, it is now clear that the landscape or townscape cannot just be taken at face value. The real basis of many environmental ills lies in decisions taken in far away offices, in overburdened structures which fail to respond to pressures, in mechanisms which are so taken for granted they are never overhauled.

One of simulation's chief attributes relates to the way in which it can present process, stripped down to the essentials; and here, environmentally speaking, there is plenty of necessary work to be done.

Perhaps a single example may help to illustrate this.

Urbanisation - a development game.

In my own college much of our first-year work in the geography department was and is involved with first-hand environmental study in rural, urban and suburban environments. We were often aware that the problem was not having enough environmental data to work with, but too much. It was the very complexity of situations which often proved a stumbling block; and if students were tackling a first piece of work it was often, for them, difficult to disentangle the trivial from the significant in their observational work.

We also found that environmental problems were often seen in vivid black and white terms; people tended to line up either in the vanguard of preservation ("All bungalow colonies are, by definition, an ugly rash on the landscape; new towns are a bad thing") or in the vanguard of progress ("All conservationists are backwoodsmen in more senses than one; the motorway must go through") etc.

We did not want to discourage enthusiasm and commitment and replace it by fence-sitting, but we did want to make sure that such attitudes were not uninformed; so in order to try and prevent the misreading of situations when work in the environment was being tackled, a game seemed an obvious ploy.

There are some existing games that are concerned with planning and development process (John Taylor has a comprehensive survey of them in his Instructional Planning Systems (CUP) but when we looked at them we found that they took days, often weeks to play, longer than we could afford, given students doing a main subject on only one day a week. So to devise something ourselves was the obvious answer.

It is held in some quarters that game-building is a highly esoteric process and one to be left to "experts"; on the other hand, it would seem, if you have a burning idea for the central interaction of a game, the rest of the material soon fits around it. Trial and error, and a few preliminary experimental runs may well de-bug a home-made effort successfully; the biggest problem is usually to keep the central part of the process central to the game, and not succumb to the temptation to add in superfluous rules in order to simulate everything.

We had a central idea to work with - the idea that the process of urbanising a landscape is not a heroes v. villains slanging match, but a process in which, economic, social and environmental factors interact in different ways through the unpredictability of human nature. We wanted to show, for instance, that not all in-filling destroys landscapes, and that sometimes landowners sell land for development for the best rather than the worse of motives.

Our board for the game was based on a disguised piece of South Downs landscape, similar to the Mid-Surrey areas which we use for field-work. It was covered by a grid of squares which represented the individual lots of land which would be the subject of negotiation during the playing period. Teams of players in the game represented the various interests which were concerned with the development or preservation of the landscape - local landowners, prospective developers of housing, industrialists and so on.

One key group was to simulate the local Council. This group not only controlled the administration of the game to some extent, but also represented a "joker" in the pack. An election result (simulated by the drawing of a card) was announced every three rounds - one round representing a year of activity - and this could change Council policy. It was suggested that when the Council was "Blue", it was chaired by the Lord of the Manor who could thus have a substantial influence on planning decisions; when "Red", it was given incentives to develop more housing at the peripheries of build-up zones.

It was obvious that the development of such a simulation could not simply work from a crude basis of financial competition. In this kind of situation, for instance, there may be elements of competition, but clearly the total objectives of (say) an industrialist wanting to locate a factory may be different in kind from those of the Lord of the Manor. The industrialist may have an environmental conscience but be thinking in terms of a suitable location mainly in terms of cost-benefit; the Lord of the Manor may find the loss of some favourite parkland or the despoiling of an old-world village something beyond any financial calculation.

We tried to cope with this by allowing differences in objectives to be written into the starting position. We postulated that all groups were interested in (a) their bank balance, (b) the state of the environment to some degree, but weighted the balance of these accordingly. Thus the State of the Environment score was x10 for the Lord of the Manor in the final resort, but only x2 for one industrialist.

Assessing the State of the Environment itself was also, of course, something which needed to be reduced to quantifiable terms. In doing this we were aware of simplification, but concerned to provide a mechanism that was a measurable component in the game. So we set up a maximum score (500) at the start of the game from which points were deducted every time some urbanisation took place. Points were deducted for squares themselves urbanised, and for the edges of squares, ie patchy separated development would reduce the score more quickly than that which was in-filling or rounding-off existing development.

Land changed hands by a process of negotiation in rounds; the rounds were divided into "verbal negotiation" (15 minutes) and "written negotiation" (5 minutes). During the verbal negotiation players with land available for sale might interview more than one prospective purchaser - in some cases stringing several along until written bids came in from which they selected. The written bids (solicitors letters?) represented binding contracts for land and were then registered with the local Council who adjusted the game board accordingly.

The Council also had a "Planning Department" which could give or withhold planning permission for land, within certain constraints; thus the unwise purchaser of land might find himself in difficulties if he had not ascertained planning policies in the first place.

Organised in this way, we found that the game took two or three hours to play - plus extra time for briefing the teams and for discussing it afterwards. It could be operated comfortably within the context of a full day's work for 24 students.

It needed nothing more than the board and informally grouped tables and chairs (aided by identity signs) in a single room; the group playing the Council tended to set up a group of tables as "Council Offices" and work departmentally from these.

A succession of plays of the game produced interesting variations in strategy; sometimes the "villagers" sold out far too easily and later regretted the increasing development which went on apace to the benefit of others; at other times, the developers and industrialists had to pay grossly inflated prices to their own disadvantage in order to obtain land that they wanted.

The early games often found the Lord of the Manor and the local landowners getting together in a "local pact" in order not to sell out; this was disturbed on more than one occasion by the controller of the game notifying the squire privately that he needed to raise several thousands of pounds for tax payment in a hurry. The resulting lack of confidence between allies bore resemblance to more than one village community that we knew where this had happened.

One extra piece of flexibility in games like this ought to be in relation to rules. If participants suggest that certain points are not covered, then there is every reason to respond to this by creating new rules on the spot, even allowing new strategies. The most extreme (but ingenious) example of this has been the occasion when the male Lord of the Manor became worried at the guileless way in which a local (female) landowner was selling pieces of land to developers. He proposed "marriage" in order to subsequently take over her assets; since the lady was willing, the controller performed a short and highly unlikely ceremony, and game went on with the two playing as one

The final result of this game is not as important as what usually happens afterwards. If there has been some discussion about what is involved in the game, it can be related to the immediate programme of field investigation that follows. Students go into the environment with their minds less on "local building materials", and more on the planning policies of local Rural District Councils. They look for economic and social reasons for housing and industrial development; for community strength and strategy in retaining the character of existing village settlements. Above all, they are alerted to the unseen processes and systems behind the snapshot view of rural England which may spring most immediately to the eye in an initial glance.

Thus a game of this kind is not a replacement for fieldwork, nor a substitute for study of planning and development problems: but it is, if used within an integrated teaching unit, something which can enhance and deepen the possibilities of environmental study subsequent to it.

Some games discussed

A game such as the one described above may seem to be complex in its organisation and rule structures; and so it needs to be if the process under scrutiny is one with a large number of variables. Nevertheless, even the construction of such a game is time well spent; the identification of the essentials of a working system is a self-education in itself, quite apart from its relevance to the subsequent game activity.

But not all simulation approaches to the environment need to have that kind of scope. A game has rules and restraints; a role-play has hardly any. In this latter kind of simulation activity, initial briefing of participants is usually restricted to a paragraph of biography, aided perhaps by other technical information which is available for use if needed. Then the discussion (Council meeting? Cabinet meeting? International conference? Government enquiry?) begins and the matter is wide open from there.

Role-play of this kind based on local issues (the siting of an oil refinery, the re-development of a town centre) can be extremely effective, though it is much better if the participants are not aware of what has actually happened in reality; sometimes familiar landscapes can be disguised by the use of such simple devices as changing names and re-orienting maps through 90 or 180 degrees.

One published role-play which is a good example of the virtue of simplicity, immediacy, and controversy is SPRING GREEN MOTORWAY which, as its name suggests deals with the problem that a new road might cause in a small local community. It can be completed within an hour, or extended into a project lasting 2 or 3 weeks, depending on how far participants search and utilise additional technical information to strengthen their case.

One of the most famous of urban-oriented simulations is the PORTSVILLE activity in the first unit of the American High School Geography Project. Portsville was one of the activities which carried the AHSGP to fame, and its attractive plastic boards and building blocks are ideal for the simulation of town growth in the North American situation. However, as a prototype it is probably inspirational rather than directly analogous to the British situation; its grid-iron patterns are distinctively USA-Canada style, as are its programmed sequences of development. In addition it is relatively expensive when purchased in the form of a class set (6 boards for groups and associated materials).

There have been several English attempts to adapt this simulation idea, using alternative materials and data. The most successful ones have used hardboard, and more readily shapable adhesive materials such as Sasco or Plastigraph. One blueprint for development on this approach is in Everson Fitzgerald's successor to "Settlement Patterns" ("Inside the City", to be published shortly).

One attraction of these town growth simulations is the possibility of starting with a known historic situation and seeing the possible alternatives that may emerge; discovering, in other words, that what is "reality" is only one of a number of solutions that might have actually developed. But beyond this it is intriguing to let simulations run on into "future periods", postulating the town as it might be in 1981, or 2001. This is, in fact, one of the practical uses of the tool (though a risky one) at all levels from Herman Kahn's scenario-generating "think-tanks" to local council planning.

An alternative style of simulation used in this context is that which uses a random number "Monte Carlo" approach to create patterns of settlement (see Keeble, Hancock, Gowing & Jones). Here an environment (divided into grid squares) is evaluated for the likelihood of settlement as an initial stage in the operation; then the operation of chance factors (through the random number tables) is added to these assumptions and units of settlement growth are thus developed and located. In this style of simulation, the participant is not a decision-maker, so much as an operator of the mechanism of chance; and though the final alternative patterns of (say) eight groups are often interesting to compare, without calculating or computing aids, the mathematical "busywork" of this style of simulation can sometimes be disproportionately time-consuming.

This emphasis on the process of town growth has come to supplement a more two-dimensional approach to urban morphology and structure. In the same way, urban studies in general has, it seems, been developing stronger interest in the functioning elements of cities; the question "what is this place like?" being now linked to "what is happening here?" Yet, at present, perhaps because the ground itself is much less extensively covered, there is a general absence of published simulation material which deals with environmental movement patterns. We could do with some more convincing models of commuting, leisure activity, and industrial linkage for classroom use and study.

Current concern about the nature and quality of the environment has already found considerable reflection in both published and unpublished material, however. For instance, the Coca-Cola American-derived "Man and his Environment" simulation is carefully designated as a kit rather than a game (another euphemism currently in vogue is "instructional exercise"), but it sets up a planning situation in which the class discuss possible items of development. The board, and pieces, though attractive, have a confusion of plan and oblique perspectives which will not satisfy some teachers (or children) and the simulation limits its own value by postulating a "correct" solution to the problem - hardly a concept which environmentalists would find completely acceptable.

An environmental exercise on a different scale was that thoroughly devised by S McB Carson & D J Lewis for the Hertfordshire Education Committee 18 months ago. Their "Conservation Game" needed 40 or 50 players and a day to play. Teams, armed with dossiers a couple of inches thick, pre-thought the Roskill issues, using giant boards of south-east England, supplementary 1" and 2 1/2" O S maps, and acetate overlays of runway sites and noise contours in siting not only a third London Airport, but also attendant settlement, communications, water supply and sewerage facilities.

Teams struggled to first find a suitable site and then maximise their efficiency in laying on services, before comparing solutions with other teams at the end of the day. One interesting feature of this simulation was the double currency employed - fffs and conservation points. You could build a cheap airport and destroy every site of scientific interest in sight on one hand; or else run up an excessive bill for the sake of practically every Brent Goose on the other. Discussion of the relationship between these 2 currencies was a key factor in the de-briefing of the game.

Some of the best material concerning the quality of urban life has come from American sources so far - with the problem of translation into British environmental terms a prerequisite for use. It points up the frequent need to adapt other people's material rather than to use it as it stands.

But one such American simulation that certainly deserves a European counterpart is the POLLUTION simulation devised for the Wellesely Public School system in Massachusetts. Here the game begins with commercial users and developers happily making profits, at the expense of polluting both air and environment. If they continue to feather their own nest, everyone in the end does badly; if they seek some voluntary restraint

and co-operate in tackling the pollution problem (reducing the "Count"), it is to the benefit of all - a useful lesson in any event, and certainly an example to show that simulation and gaming is not a synonym for pure competitive zeal.

American simulation use and research is considerably more advanced than ours in the environmental sphere, and yet we shall need to be careful not to take exclusively North American (or even West European) prototypes to fit all situations; it is the snare of the development syndrome in another form. But where problems are not idiosyncratic, there must surely be much future help from a technique which allows students to put themselves in other people's shoes, to practice strategic thinking, and to examine the dynamics of a world in which the systems of activity are themselves in constant change.

Some published sources of relevant game and simulation material:

PORTSVILLE is marketed as part of Unit 1 (Geography of Cities) of Geography in an Urban Age (Crowell-Collier-Macmillan, London). The whole unit (a term's work in English situation?) includes materials for 30 students and contains a dozen different activities at a cost of £130. A "replacement kit", containing one Portsville board and related building and recording materials can be bought for £24.25.

The general idea is used in an English context and described by J A Everson & B P FitzGerald in "Inside the City" (Longman, 1972).

Mathematical models for town growth are described by

D Keeble in an article in GEOGRAPHY, January 1969 (Geographical Association, Sheffield);

J C Hancock in an article (also available separately as an offprint) in PROFILE, December 1970, St Paul's College, Cheltenham, Glos.)

Another example developed by D Gowing & Sheila Jones appears in "Simulation in the Classroom" by J L Taylor & R Walford (Penguin Education, 1972)

Extracts from the Hertfordshire CONSERVATION GAME (Carson & Lewis) are included in the same book.

"Instructional Planning Systems" by John Taylor (C U P 1972) includes as an appendix a full description of his LAND USE GAMING SIMULATION and refers to many other university-style planning games.

SPRING GREEN MOTORWAY, a role-play, is published by Community Service Volunteers (28 Commercial Street, London E1) at 35p a copy.

MAN & HIS ENVIRONMENT, is published by Coca-Cola Corporation (Atlantic House, Rockley Road, W 14) at £3 a copy.

STREETS AHEAD, a social problems game, is published by the Liverpool EPA Project (Paddington Comprehensive School, Liverpool) at £2.12 a copy.

Descriptions of games in books include:

SHOPPING in "Games in Geography" by R Walford (Longmans 1969)

Several in "Simulation Games in Geography" by R Dalton et al (Macmillan 1972)

Several in "New Ways in Geography" by J P Cole & N P Baynon (Blackwell 1969-72), Introductory Book, Books I, II, III.

Some major American simulation agencies include:

Abt Associates, 55 Wheeler St, Cambridge, Mass.

- designers of POLLUTION for the Wellesely Public School System - however the game is unpublished.

Project Simile II, Box 1023, La Jolla, California

- publishers of ECOPOLIS (a simulation about long-term ecological problems) & EQUALITY (a struggle for racial equality in a typical American city).

Urban Systems Inc, 129 Mount Auburn St, Cambridge, Mass.

- publishers of DIRTY WATER & SMOG (both pollution-type games) & ECOLOGY.

CREATIVE WRITING IN URBAN STUDIES

THIS POPLAR WHERE WE LIVE

an account of an "Offsite" project carried out by teachers
and children at Manorfield Primary School

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In January 1977 a project called "Offsite" was set up by the Inner
London Education Authority (ILEA) and two primary schools in Hackney, an inner
city London borough, agreed to undertake the initial study,

Essentially the project was about the local environment, and how
it might be used as a resource by teachers within the broad framework
of the integrated primary curriculum; instead of relying on textbooks
for information, teachers would go off the school site into the world outside
- hence the title of the project - and use the environment which belonged
to the children and in which they, not their teachers, had the greater
experience.

An increasing number of teachers are becoming convinced of the need
to take account of the local environment, not least because it embodies a
respected tradition in education; that the starting point in children's
learning is the knowledge and experience they already possess. Important
though we felt this to be, there were other considerations which influenced
our design of "Offsite". In particular, the rather uncertain impact of a
course run from a teachers' centre, which teachers might attend or not,
was contrasted with the prospect of influencing an entire school staff by
basing the project in the school itself and encouraging the teachers from
the beginning to plan their project and to identify their own strengths
and needs.

So far, a great deal of exciting work has been produced by the
schools in Hackney. Now that the initial studies have been made, the
teachers have gone on to explore them in greater depth and with the
assistance of the advisory teachers achieved greater skills in art and
mathematics. It is hoped that this will influence the quality of the
children's work. Future needs that may well be expressed by the teachers
include science, language, photography or indeed any skill by which in
the opinion of the teachers, children may more profitably explore their own
environment.

Despite the fact that the Hackney schools were situated in a deprived
and run-down area, there was a wealth of material for them to draw on; both
the people and the buildings they lived in offered a rich variety.
Poplar, by contrast, has been rebuilt in recent years, the area surrounding
Manorfield school consisting of tower blocks, modern estates, and shattered
streets lined with corrugated iron. Links with a past are few - one or
two ornate iron lamp standards; shops with worn gilt lettering; the
fag end of Victorian terraces. The problem for these teachers was to

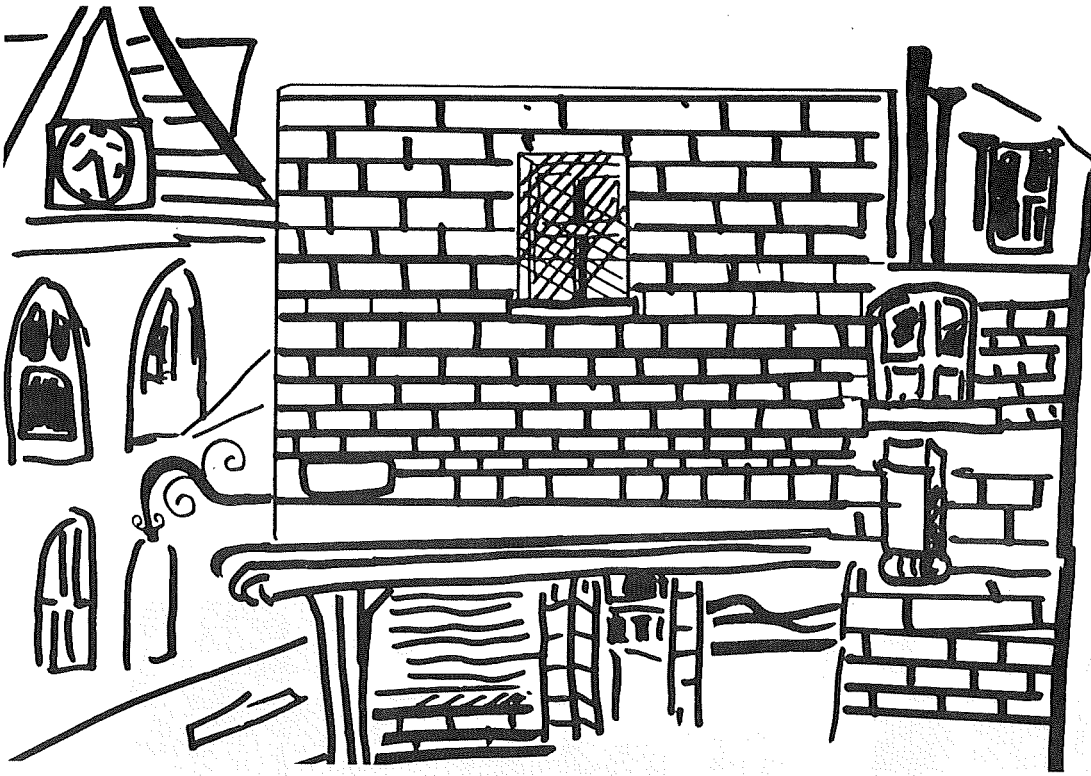
decide how to use what was there in a manner appropriate to their children and their own experience; Hackney had been a stimulus, but in most respects could not be imitated.

Initially many of the teachers decided to begin with an informal walk round the area. Some would not have had the confidence to use such an open-ended approach on their own - "Suppose we don't find anything?" - but since they were keen to begin the more structured town trail (which wasn't available) the teachers trusted the advisory teacher's experience to make the most of the experience. In the event, of course, the kids did all the findings and the adults simply needed to keep an open mind. From these walks several themes emerged: contrasting brick patterns, textures and colours; lettering materials and styles; windows and doors; skylines; the canal; dated buildings. The children noticed different road surfaces, lichen growing on a factory wall, two dead birds speared and hung from a window. They realised the significance of new gutters on a row of seemingly abandoned houses ("They must be going to do them up"). One boy asked "Why is the smoke from that (factory) chimney different from that?" (power station) - not something easily written into a trail! They met an elderly resident who remembered the old days of horsedrawn transport: "A horse would never knock you down - he'd step over you if he could!".



Streetwork at Manorfield School

A major part of this school's work consisted in some exquisite drawings, and writings based on the children's experience of the area. The latter came about because the headmaster had considerable experience in teaching writing to primary children and as head had continued to take classes of older pupils. His own success had encouraged other teachers in the school to concentrate much of their effort into developing their own skills and to learn something of his technique. Briefly, the children had learned to focus their attention on specific experiences that most of us have had and usually believed were quite unique: the secret sensuous delight in thrusting a foot out of bed on a cold day, then drawing it back again into the warmth; ; seeing spots and flecks before the eyes, and realising that one was going blind; ; bloody eel fragments wriggling on the scale; meeting the school bully in a lonely corridor.



Drawing of street corner near Manorfield School; age 10

At first, the children were given a great deal of guidance in learning how to use words effectively, then gradually the support was withdrawn as the children acquired greater craftsmanship.

So the children's writing was firmly footed in environmental experiences which were sharp and vivid, and could be shared with others because we have all experienced them for ourselves. This was the situation when the "Offsite" project was set up, and we decided to draw on the children's skill in writing and to relate this to their experience of living in Poplar.

What was this experience, judged by their written accounts of it? Living in such painfully deprived surroundings, it might be expected that they would be critical, and many of the children write about squalor:

"Poplar is a smelly place"

"The old factories stink all day"

"Rubbish on the floor"

"Dogs' droppings on the pavement"

and the final, absolute, totally rejecting

"I hate Poplar".

Yet with all this there are expressions of affection, derived in part from that apparently universal attachment we have for our own bit of territory, a "love of place" which, despite the developers, still apparently persists in the East End. Perhaps, too, skilful teachers had added to the children's vivid environmental impression of the city something of the craftsman's cool detachment, equally observing

"Cracks in the pavements like bunches of spiders"

"Dog muck covering the pavement like a dirty carpet"

"The tree with the noisy birds in it"

"Just in front of the dark damp patch where I play".

Some people may find many of the children's images harsh or unpleasant: "Couldn't you get them to write about something nicer?" The fact is, of course, that this is the environment that we have created for them, to play, grow up, and come to terms with; this is their world, and the planners' dream, evident in the towering flats and bleak, barrack-like estates, have failed to materialise. The writing honestly and forcefully opens a window onto a world that many of us would prefer not to know, and forces us to recognise that even children may have something to say about cities - if only we trouble to listen.



Manorfield kids

Poplar

THE DYING OLD HOUSE by Amanda Stone

Swinging a pick backwards and forwards

As it hits the dying old house that had once been laughing and happy
talking to his dear departed friends.

The man on top seems evil to the little house

as he does his tightrope act

The pick swings like a clocks pendulum.

The old windowpanes scream as their glass is shattered like
a waterfall the house is sad as its inside is pulled out
and falls to the ground

HAPPY STREET by Janine Moody

The road sweeper comes along

The dust going into a big tin box

People cleaning windows

Making the street bright

The trees blowing in the wind

Giving it a touch of happiness

Making the solemn people turn

into whistling birds

The flowers in the window

With people doing gardening

Making our street come to

Life The grass so green

Green as a garden pea

Our street was an ugly frog

but now a handsome prince

THE CAR by Kevin Gennings

The smashed headlight winking at me
Rain making it all seem blurred
The bumper sitting on the front
Waiting to get rusty, with a piece
of string holding the handle of
the boot to the back bumper, so
that it doesn't come undone.
The car sits, begging for the
rain to stop and his master to come.

PRELUDES by Kelly Hand

Cracked paving stones
Fences in need of paint
Untidy gardens
Broken windows in empty houses,
half-built blocks of flats,
Dogs fowling the pavements,
"Mind where you tread"

Surrounded by factories

Smoke pouring from chimneys
Contaminating the air
Noisy traffic, exhaust fumes
Patches of petrol and oil-making
rainbows in the roads,
Muddy puddles on the pavements
Rubbish meant for the chutes,
scattered about the place.

PRELUDE 1 by Amanda Collins

I see the sun

Shining between blocks of flats

The grass, - green and fresh,

As I walk to school I can smell

the schooldinners

Greens and Fish!

The flowers are beginning to blossom.

THREE PRELUDES by Joanne Degauerie

ONE

Writing on the sheds down the alley like

long noticeboards.

Trees with wire netting round them like prison gates

Paper rushing in the wind.

Dog's muck covering the pavement like a dirty carpet.

TWO

Cracks in the pavement like bunches of spiders.

Fumes from the wood factory like a giant

smoking up a chimney

Trees swaying in the wind.

THREE

Corrugated iron around the debris like a bumpy road

Bits of paper flying around

Old tins lead a line from the chute where the dustmen's been.

PRELUDE

Cold and cautious,

The wind blowing.

Paper curling around lamp-posts

and then falling asleep

Lights go off one by one

"Can you see the old man in

the cold market with no shoes on"

The night is cleared by the

morning sun,

I am sad,

SID, by Darren Leftley (aged 7)

Downstairs in the block of flats where we live, there is an old man. His name is Sid. He does some very dozy things. He goes up the pub every night and comes home drunk. Then he looks for his house in the bushes. When he can't find it he swears and shouts. Sometimes I'm in bed and I can hear him shouting. Then his wife comes out and has a row with him. Sometimes his wife locks him out and he kicks the door, and when he does his wife opens the door and chases him with the broom.

PRELUDE ONE

Dark alleys waiting for your scared
bodies to walk past

Your glowing eye's look at the street you knew,

Was it the one you used to know?

You will never know in the night.

Yes, if my ears are right, the tree with the noisy birds
in it.

Just in front the dark damp patch where I play.

PRELUDES

ONE

The dark sets a gloom
on the street.

A car being cut in half
by streetlamps,

Grass, brown after football boots and
footballs have worn it out.

Paper rustles into corners and around
cars.

Shadows wave across the street to each
other.

Birds silent after the long day.
The ground drinking the last of the rain.

TWO

The birds sing a song to people who pass by.
The sun wakes up the flowers in the gardens.
Dogs bark the first bark of the day.
Faces look through the window to see the new day.
The street lit by the sun as the street lamp goes off
Last night's smells go and the smells of the new day come.

PRELUDES by Paulina Thomas

ONE

The morning cold and gloomy.
old men mumbling to themselves
wishing it was
summer.
Dogs droppings on the pavement
and people stepping in
it and scrapping it off on the
edge of the road.

TWO

The view from the balcony is better you
can see all sorts of things. The park with broken
glass on the floor. The back garden at the back of
Hillary house covered in socks, clothes, and bread
for the birds.

PRELUDES by Susan Watts

ONE

Dark sky,
Dirty flats,
Dogs mess,
Skateboard tracks.
Brown grass,
Smelly chutes,
An Early Morning
Boat toots.

TWO

Dark sky,
Puddles of oil,
Broken lifts,
Broken glass.
Weeds shooting through
Paving stones,
"West Ham rules OK"

DIRTY ROADS by Sandra

Smashed up glass.

Sweetwrappers everywhere.

Old houses.

Smashed windows.

Big broken bricks.

Dirty dusty motorways.

Smelly dustbins.

Gypsy caravans down the roads.

Old tramps wandering round the streets.

All dirty rubbish on the railway lines.

Holes in fences. Broke in schools.

Half demolished.

Old gas lamps on the bridges.

Pungent smells.

Writing over walls.

All the rubbish flying around in the sky.

Poplar is a mess.



Streets around the school - the raw material of the project

PRELUDE

The long gray car
Settles down for
a cold long night
The car lets out
its last fumes
All through the night
the ice forms on it
bit by bit.
The light comes
from the sun and
the ice slides off
very slowly.

HACKNEY TEACHERS' CENTRE

Pitfield Street Annexe
Pitfield Street
London N.1

Tel. 01-739-0729

WILDLIFE AREA FROM WASTELAND

E Yewdale, Harpurhey High School, Lower School, Manchester, Lancashire, England;

This linked comprehensive girls' high school with an upper and lower site is situated approximately 3 miles from the centre of the city and lies within a slum clearance/housing redevelopment area.

In 1971, a rectangular piece of land measuring approximately 60 metres by 30 metres was added to the lower school grounds which had previously been part of a refuse dump. At that time it was used by young people for leisure activities eg motorcycle racing, football and other games. The land 61 metres above sea-level, trends north-west/south-east. Along the north-eastern side there is a short bank dropping one metre to the perimeter fence along the road. To the north-west there is a steep bank dropping about 5 metres to the fence. The remainder of the land is flat. The southern corner of the land is nearest to the school building at a distance of about 50 metres. About three-quarters of the surface of the area is covered with clinker, the remainder has a covering of clay soil up to 30 centimetres in depth, below this the ground is impenetrable with spades.

During the winter of 1971/2 the pupils were asked for their ideas and suggestions for the development of the land. After viewing the land, considering and discussing the situation one of their suggestions was to build a bird sanctuary. They added that as this area was relatively large a bird sanctuary would make a significant contribution towards the improvement of the local environment. There was so much interest and enthusiasm, both necessary prerogatives for success, that it was obvious this suggestion had to be incorporated into the final scheme. The feasibility of the project was considered and it was decided that in order to derive the greatest educational value, both for the present and the future, the land should be converted into a wildlife study and resource area.

The project was undertaken by the Rural Studies Department which was already running a very successful course with a horticultural bias. The project was integrated into the Rural Studies Scheme and not treated as a separate entity, thus enriching the many facets of the course.

As the pupils attend lower school for 3 years only it was felt that a plan must be devised which would give some results within the school lifetime of the pupils. Therefore it was decided to begin the development of the land by concentrating all efforts and resources at the southern end of the area. By doing this, one small area, about one seventh of the whole, became established first. The developed area was then extended each year. This gave each "new" set of pupils the opportunity of starting from virgin derelict land as well as managing previously developed areas. This method proved to be very successful with regard to the educational value, but very slow in improving the aesthetic quality of the land. Experience has shown that there was little significant progress for the first 2 years and that patience and optimism are essential.

In late spring 1972 an initial survey for birds and animals was made over the whole area. Apart from a few of the commoner city birds there was no evidence of any other animals. Because of this result 2 further surveys were carried out. Remarkably, only 3 earthworms were found. From this result the barrenness of the land can be appreciated. Records of the plants and of the bird visitors were begun at that time. Following this survey the first major task of transplanting about 30 3-year old trees, from the school's tree nursery presented the first problems. Owing to the great difficulty of digging holes for the trees valuable teaching time was being lost, and so digging was confined to non-lesson time and the aid of the school's groundsman was sought. Then, whenever optimum conditions presented themselves at the correct lesson time the trees were transplanted. The survival rate of these home-grown trees is 100%. Bought standard trees planted in later years gave difficulty as support stakes could not be driven firmly into the ground, and those that survived took 3 to 5 years to establish themselves. Only about 40% of whips of various varieties of trees survived, failure was due mainly to their vulnerability by vandals and their arrival when the weather was difficult for planting. It would seem obvious from these results to recommend the planting of home-grown trees but the failures too have been very useful in providing valuable teaching aids.

The tree growing and planting is always the most popular activity and provides the greatest stimulus for theoretical work. Incidents arise which arouse great interest and often direct a line of study. During the summer of 1977 2 birch trees were almost completely defoliated by hundreds of caterpillars. The sight of the extent of the damage caused by such small creatures made a great impact on the pupils. From this small beginning evolved a wealth of educational material, from the life cycle of moths to the controversial issue about the use of insecticides by commercial growers and on to discussion about world environmental problems.

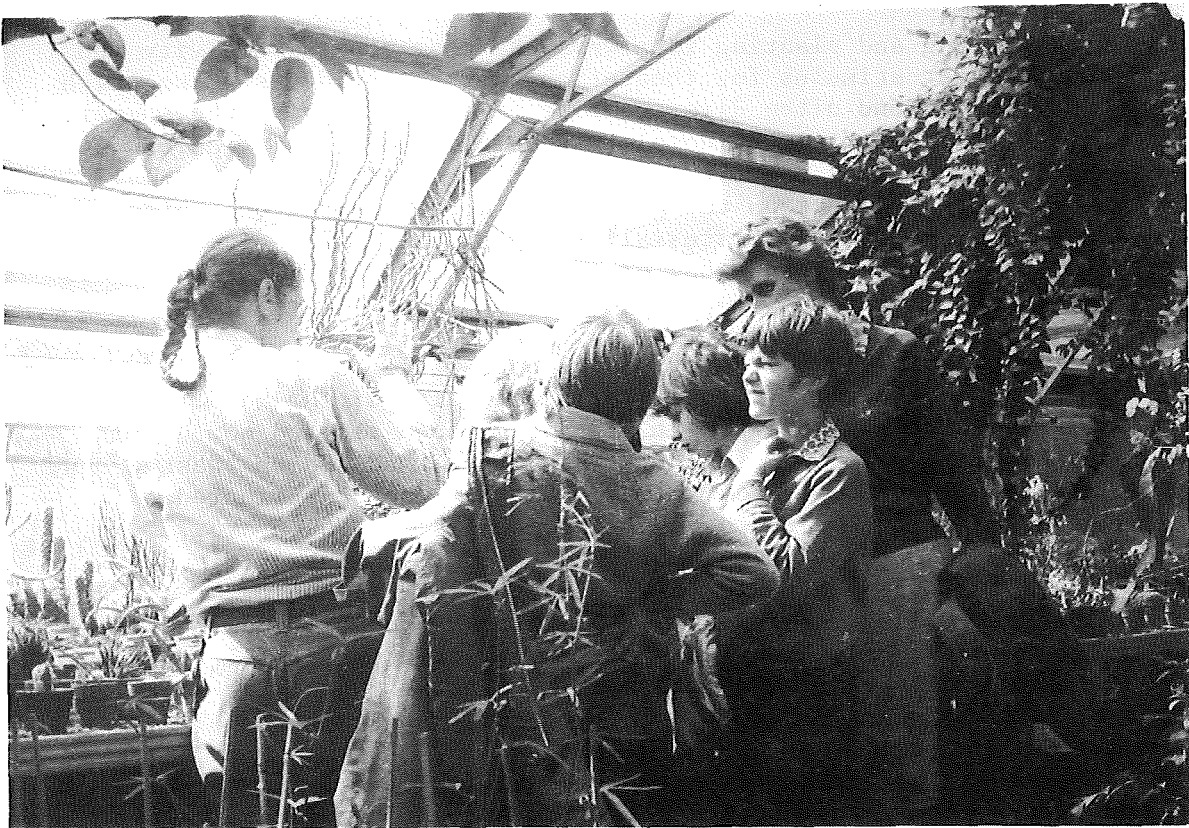
Throughout the project any detrimental occurrence has been used to advantage. There have been fires on 3 different parts of the land, a drought, a fungal attack on one particular tree, vandalism and now a threatened take-over by lupins! Wild flowers other than common wasteground varieties are becoming more evident, but as yet have not contributed any significant difference with the associated animals. So far 16 different species of birds have been sighted, 4 of these have arrived since 1975, and it is now possible to witness the birds choosing a particular habitat. There is the school playground and buildings, the vast playing fields and the wildlife area. All this within the school environment! Perhaps the most spectacular event was the sighting on 3 separate occasions of a pair of partridges in the wildlife area during the summer of 1977,

The educational potential of the area seems limitless. As the trees, bushes and plants mature and provide more food and shelter for animals the scope for study increases. The greatest advantage has been the accessibility of the area with its ready availability of material - values now realised and appreciated by the Art, English and Biology Departments. Not only has the project provided the pupils with opportunities for the acquisition of skills and knowledge but it has been directly responsible for the development of a sense of responsibility for the environment not

just for the present, but for the future. Having tried to remedy the result of past generations' neglect it has made these pupils particularly aware of the part their present behaviour will play in the future.

The project has incurred the minimal expense as many trees and bushes were raised from seeds, others have been generously allocated to us by the City of Manchester Education Authority who have always shown interest and given every support.

Now after 7 years, what was originally an eyesore has become an area of great educational resource as an aesthetic environmental improvement which will give tremendous pleasure to a large number of people.



Educational visit to the Nature Study Scheme's Centre

NATURE STUDY SCHEME

Inner London Education Authority

GENERAL

This organisation exists to supply biological specimens to ILEA schools and colleges, and maintains the gardens of schools by arrangement, where these are less than half an acre.

From small beginnings in Hyde Park in the year 1899 the organisation has changed its location several times, moving to the present purpose-built premises on a nine-acre site in 1966. The premises comprise office accommodation, laboratories, small mammal house, packing rooms and cold store etc, while in the grounds there are three Hartley Clearspan greenhouses, a small weather station, botanical and rock garden, plots for the culture of annual, biennial and perennial material, young tree plantations, and an area with ponds designated for a small nature trail.

FACILITIES

Schools and colleges can make a selection of the services they require by reference to a supplies booklet issued periodically. Here they will find listed most of the botanical and zoological material likely to be needed. These will include:

a. Botanical: Pot-grown plants for indoor growing or experiment, freshly-gathered cut plant material including twigs and fruits of native and introduced trees and shrubs, garden and wild flowers, ferns, mosses, fungi, grasses etc, small timber samples, soil samples, and any other seasonal material available in reasonable quantities and considered to be of educational value. The "Botany Box" is a regular delivery of the above type of material to a very long list of schools who have, on account of their urban location, a special need for a regular consignment of fresh plants. Each monthly box contains about six species separately bunched and labelled. Descriptive notes are occasionally included. Some of the botanical material comes from the grounds, but the majority of the Botany Box material is brought in from a wide range of long-established collecting grounds, mainly in north Kent.

Plant material may also be supplied, as appropriate, dried, deep-frozen or preserved in alcohol.

b. Zoological: Small mammals are reared for use as pets, or for course work. Rats, mice, guinea pigs, hamsters and gerbils are usually available. Tropical and native fish, together with plants, are supplied, also frogs, newts and miscellaneous aquatic specimens. Green lizards and grass snakes may be available. Locusts and stick-insects, silkworms and native terrestrial fauna can be supplied. Cultures of the commoner micro-organisms are maintained. Certain animal organs including ox eyes, hearts, lungs and kidneys may be ordered.

Before starting to keep animals schools have to consider their proper maintenance for seven days a week, including holidays, and also their breeding potential and the availability of suitable feeding materials. Once supplied, animals cannot, as a rule, be received back at the Centre.

SCHOOL GARDENS

A major activity of the Nature Study Scheme is the care of a large number of the smaller gardens belonging to schools in the Authority. These are maintained by a staff of gardeners in all parts of inner London. Plants, soil, fertilisers and other materials are supplied as needed, and the office administration work of this group of about fifty staff is done from here also.

WEATHER

A small weather station is run to record wind directions, rainfall, temperatures, sunshine hours and air pressure. These details are collected into a composite graph and sent monthly to schools requesting them.

VISITS

The Bexley Road Centre is open for visits by children and staffs of ILEA schools on certain days in the week by prior arrangements.

ADVICE

The department frequently advises schools on problems and ideas in biology, nature study, gardening and related matters.

A PRE-SERVICE TEACHER TRAINING COURSE
IN ENVIRONMENTAL SCIENCE, AT CHELSEA COLLEGE

John B May, Head of Integrated Science Section
Joint Organiser of the Environmental Science Option
Centre for Science Education
Bridges Place, London SW6 4HR

The Centre for Science Education at Chelsea College runs a one-year postgraduate course leading to the Graduate Certificate in Science (or Mathematics) Education. This is a vocational course for potential entrants to the teaching profession. Students have degrees in science or mathematics, or degrees which have a substantial component of these subjects. They are enrolled in a section which coincides with their major interest from a choice of mathematics, biology, chemistry, physics and integrated science. As increasingly in the United Kingdom science teachers are being expected to contribute to the teaching of integrated or general science courses, the science-based students also spend a part of their time working in the integrated science area. During the year students follow a course which has been carefully designed to offer a balance between the theoretical aspects of education and the practical activities associated with being a teacher. A major element in the course is teaching practice in which students spend the whole of the spring term in a school.

The course includes a number of elective components. Students have a chance to choose a two-week full-time course designed to provide them with a degree of expertise in an area outside the normal range covered in their sections. The options at present are counselling, examinations and assessment, earth sciences, health education, film-making, computers in the school curriculum, modern mathematics, environmental science.

The students who opt for the environmental science course have a variety of subject backgrounds. As well as degrees in mathematics and various combinations of the pure sciences the group usually includes people with degrees in various applied subjects such as engineering or agriculture. This wide range of backgrounds is to the benefit of the whole group. Usually the group consists of 16 to 20 students whose ages range from about 24 to 40.

The environmental science option course is divided into two distinct parts. In the first part students are introduced to the aims and objectives of environmental science; the relationships between environmental science and environmental education; the place of environmental education in the school curriculum; and the different interpretations placed on the term "environmental education". In the first part of this course students are also introduced to some of the monitoring and recording techniques which are likely to be of value in an environmental science programme. The majority of students will have done little or no ecology so it is necessary to introduce them to some of the simpler approaches to ecology. In the time available it is only possible to involve students in some simple and relatively straightforward activities.

This does have its advantages, however, for the students who have done no ecology before realise that there is nothing to fear; for the few for whom ecology was part of their degree course there is the realisation that what is needed at school level is something much simpler and possibly of greater relevance. The final component of the first part of the course is a visit to an environmental studies centre at which students can find out for themselves what the centres have to offer.

In the second part of the course students are divided into groups of four or five and are given the task of producing some materials that could be used in environmental science or environmental studies programmes. From the outset the organisers of this course were anxious to make this a "real" task and not simply an academic exercise. This is achieved by contacting local organisations and schools with an interest in environmental education and finding projects which the students can tackle that will be of educational interest and value. These have included:

- producing an environmental trail for a local museum;
- reviewing the grounds of a zoological garden to appraise its potential for environmental studies;
- producing the outline of an industrial archaeology trail for a teachers' centre;
- working with a local school on a "noise" project;
- producing materials to go with an environmental science syllabus devised by a local school.

The following synopsis of the programme for 1977 will give an indication of the way the course is constructed.

DAY 1 Introduction to the environment and its problems

(A film is shown to set the scene)

The nature of environmental science

What distinguishes environmental science from other sciences and other courses such as environmental studies? List the criteria that you would look for in such a course. Identify the features which you think would make such a course a good effective educational experience.

Examine published syllabuses and decide how far they go towards reaching your criteria.

The environment starts here

Living things are found all around us. Go and examine one area in which living things are found. You might select an alley-way, the green, a garden, etc.

What organisms might you expect to find there? - and what did you actually find? List the major environmental factors which affect the area. How far does man, as an environmental factor, affect the area?

Consider what knowledge of the area you would need before you could effectively exploit it with a group of children. What activities do you think would be possible to develop with children using the area, in say the time of a double period?

DAY 2 Develop work based on yesterday's activities. Suggest ways in which children might be involved and how such work might lead into other areas of your course.

Report on your ideas to rest of group.,

Measure and monitor

An introduction to the environmental factors that are important in a habitat and how, by a variety of ways they can be measured.

DAY 3 Visit: a. The Suntrap Field Centre,

or

b. Epping Forest Conservation Centre

Report to the Wardens at 9.30 am.

DAY 4 Report back on visits.

"Energy in Perspective". An Advisory Council of Energy Conservation representative will show a film and lead a discussion on how we can encourage an awareness in children of the need for energy conservation.

Simulation and the environment 1. It's really your move

The part that simulations and games can play to develop an awareness of important concepts in environmental education.

DAY 5 Human ecology

Ecology is the study of the interaction of organisms with their environment. An expert in human ecology will send you on a field exploration to investigate the distribution of man and attempt to relate your discoveries to environmental factors.

DAY 6 Cars, combustion and confusion

It's all in the air - A look at some of the monitoring techniques available.

Simulation and the environment 2. Bring your computer

A practical session to show the part that computer programmes can play in simulating studies of the environment.

Dig out the necessary

An introduction to the problem of locating and using resources.

DAY 7 Visit: c. Horniman Museum

Report to the Education Centre in the museum.

or

d. The Nottingdale Urban Centre

Report to the Director at 10.30 am.

DAY 8 Report back on visits.

Teaching module

Take a syllabus on environmental science which is actually used in a specific school and examine it. The teachers will have identified areas where they would like help in developing effective teaching material.

You are requested to select one or more of these areas and do what you can to help them. The materials that you produce will be sent to the school for, hopefully, incorporation in their course.

DAY 9 Work on teaching modules.

DAY 10 Complete work on teaching module and report to whole group.

DAY 11 Outside assignment.

DAY 12 Work with a local Environmental Education Centre on activities of value to them.

DAY 13 Complete outside assignment.

Debriefing session

Discussion and presentation of the work that you have been doing over the last three days, together with your suggestions about the option as a whole.

Assessment

This is on a group basis that takes the form of a collective diary.

On the last day hand in a folder that contains:

1. A report on your first look at a habitat.
2. Details and results of experimentation in your chosen habitat.
3. Reports of the visit to the Environmental Studies Centres.
4. Your teaching module.
5. Your evaluation of the urban ecology day.
6. A description of the work you did at the Environmental Education Centre.

What are the objectives of the course organisers?

It is hoped that as a result of following this course students will:

- be more aware of the problems of the environment,
- feel the need to transmit their concerns for the problem of the environment to their pupils,
- have clarified in their own minds some of the objectives of an environmental science course,

- have acquired a greater understanding of the complexity of the problems of the environment,
- have learnt some of the techniques by which some of the problems under study can be quantified,
- have gained some idea of the range of teaching materials available and of value in an environmental science course,
- have had practice in producing some environmental science materials for themselves.

Is this objective being achieved?

In some cases, unquestionably yes. Students do have practice in producing their own environmental science materials, for example. However, the real test comes when students enter the teaching profession. Have they been adequately prepared to be effective environmental science teachers? In all humility, it must be admitted that this is still not certain. The need is certainly there.

SELECTED BIBLIOGRAPHY

Objectives, investigations and skills

- B Aylward (1975) "Design Education and the Environment" In: Insights into Environmental Education, ed. G C Martin & K Wheeler Oliver & Boyd, pp 98-105
- Environmental Education. Report of the Working Party from the Nevada Conference, IUCN.
- B Goodey (1978) "The City" In: Environmental Education - Principle and Practice, ed S McB Carson, Edward Arnold, pp 23-42
- B Goodey (1974) Where You're At Penguin Education
- National Association for Environmental Education (1976) A Statement of Aims for the Formal Education Service. NAEF Publications
- C Ward (1973). Streetwork: The Exploding School. Routledge and Kegan Paul.
- Review of the Area Environmental Education and Training. UNEP
- Schools Council Project Environment. Ethics and the Environment. Longman
- Environmental Awareness. Council of Europe (1976)

Teaching

- G Boon (1970) Townlook: Observing and Recording. Pergamon Press
- C G C Bull (1969) A Town Study Companion. Hulton Educational
- J Haddon (1966) Local Geography in Towns. George Philip & Son
- A Hammersely et al (1968) Approaches to Environmental Studies. Blandford Press
- G J Lines and L H Bolwell (1968) Discovering your Environment Book 4: About Building and Scenery Ginn & Co.
- H A Pluckrose (1971) Let's Use the Locality: A handbook for Teachers Mills and Boon
- J B Rigg (1968) Textbook of Environmental Study Constable
- D Stenhouse (1974) Urban Themes Weyland Publishers
- Schools Council Project Geography and the Young School-leaver Nelson
- Several games and simulations available from: Shelter, 86 Strand, London WC2R 0EQ
- R Walford Simulation in the Classroom Penguin

- R Walford Games in Geography Longman
- Schools Council Project: History, Geography and Social Science.
Place, Time and Society 8-13 Collins Educational, 1976
- P M Turner Towns Macmillan 1970
- K Briggs Fieldwork in Urban Geography Oliver & Boyd 1970
- D R Arthur Survival: Man and his Environment English University Press, 1969
- Department of the Environment, UK 50 Million Volunteers
HMSO 1972
- R Dasmann Environmental Conservation Wiley 1968
- E P Odum Fundamentals of Ecology Saunders 1971

Curriculum development

- S McB Carson (ed) (1971) Environmental Studies: The Construction of an 'A' Level Syllabus National Foundation of Educational Research
- M Hopkins (1968) Learning through the Environment Longman
- J Lauwerys and D Scanlon (eds) (1976) Education in Cities Evers Brothers Ltd
- T Masterton (1973) Environmental Studies - A Concentric Approach
Oliver & Boyd
- C H Selby (1972) Curriculum Development and Research in Environmental Education Schools Council Discussion Paper
- Schools Council (1973) Environmental Studies 5-13 Project. Rupert Hart-Davis Educational
- Schools Council Science 5-13 Project (1974) Using the Environment
Macdonald Education (Author's note: the whole science 5/13 project contains interesting material)

Training

- S McB Carson (1975) Environmental Education
- "Teaching of Environmental Studies" Conference Report 13
University of London, School Examination Department

Facilities

- Larrabee (ed) Museums and Education. Smithsonian Institution Press
Washington DC
- Pterodactyl and Old Lace (Museums in Education) Evans/Methuen
Educational
- Museums, Imagination and Education UNESCO

- Ask the Kids: Children's Views on Use of Schoolgrounds
- Planning the School Site, Research Project. Councils and Education Press
10 Queen Anne Street, London W1M 9LI,
- J Dean Room Outside Evans Bros 1975
- Town Trails BEE 16/17 Goodey BEE 46.
- Bill Pick The School as a Resource BEE 76/77
- Perhaps the most important single source of information on facilities is The Bulletin of Environmental Education. Despite its rather general title, this monthly publication shows a very strong urban bias. It contains invaluable articles, not only on facilities, but also on teaching etc. Available from: Education Office, Town & Country Planning Association, 17 Carlton House Terrace, London SW1Y 5AS.
- Schools Council Project Educational Use of Living Organisms
- Annual Accommodation for Schools and other publications English University Press
- Schools Council Project Environment The School Outdoor Resource Area
Longman 1974

Case studies

- Art and the Built Environment Contact: C Ward, Town & Country Planning Association, 17 Carlton House Terrace, London SW1Y 5AS.

