

STUDENT PAPER NO. 1

**INTERPRETATION
FOR
CHILDREN**



Department of
Parks, Recreation & Tourism

Lincoln University College
Canterbury
New Zealand



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Compiled and Edited

by

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1989

PREFACE

This paper discusses environmental interpretation for children. Included are definitions of interpretation; reasons for doing it; why emphasis upon children is important; the special requirements of effective interpretation for children, and some examples of techniques that have been used.

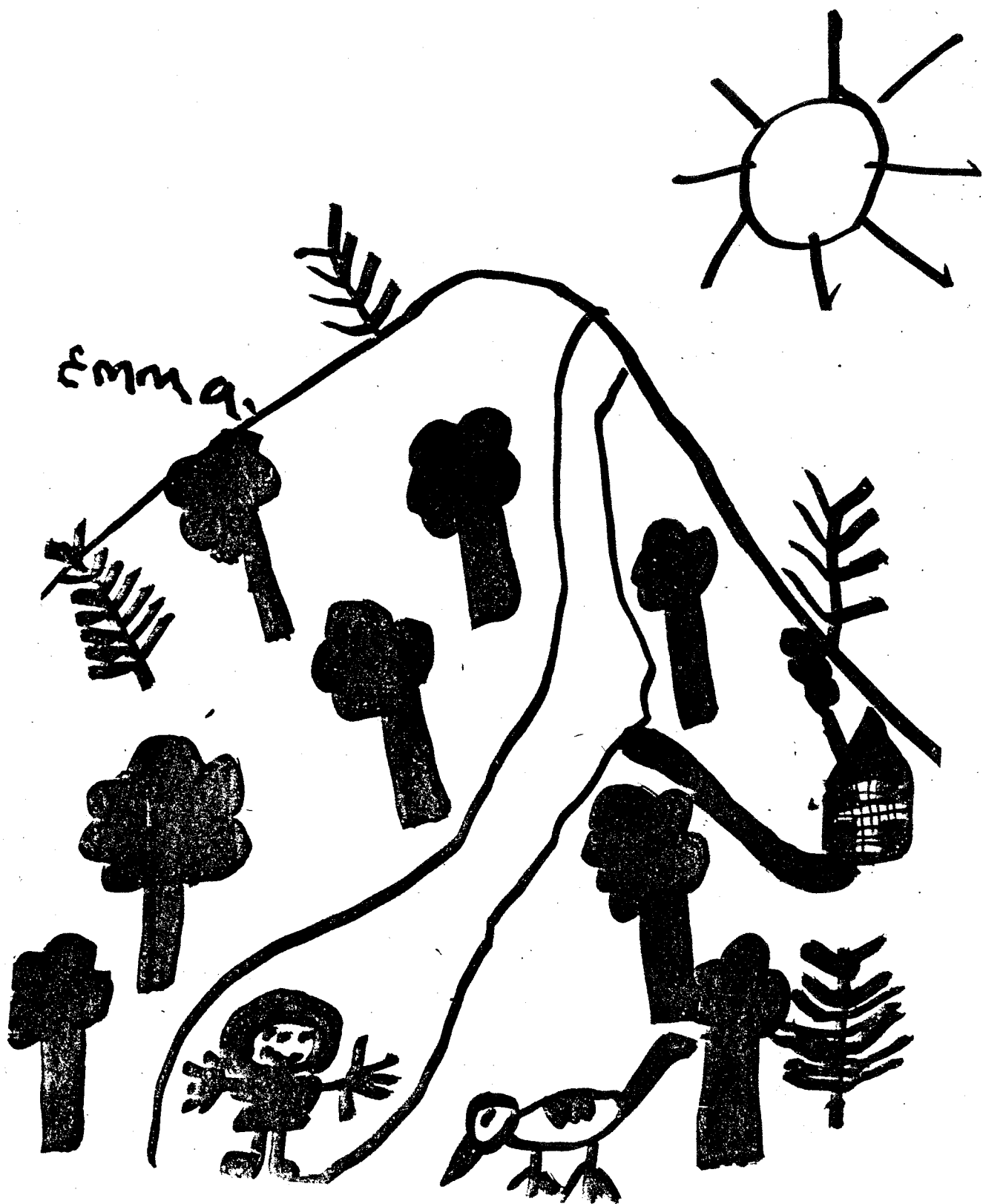
The bulk of this paper comprises edited excerpts from the three undergraduate diploma dissertations that have been done on the topic:

- Somerville, M. (1979) "Environmental Education for Young People."
- Burns, L. (1982) "Interpreting for Children in New Zealand National Parks."
- Edginton, M.O. (1983) "Introducing Children to Nature : Interpretative Displays for Children in National Parks."

Although the topics of these dissertations overlap, each makes a particular contribution on its own. This is reflected by the extensive excerpts from each included in Section 2.3.

Where smaller excerpts have been used in previous sections, appropriate acknowledgement is made by author initials before and after.¹ Other material is referred to as required. All references are included in Appendix One as a composite bibliographic list, which also includes a list of suggested readings.

1/ Somerville, M. (1979) = [MS]; Burns, L. (1982) = [LB]; and Edginton, M.D. (1983) = [MDE]. Initials and star indicate that the particular excerpt is ended, e.g. [LB] ... [LB*].



53 McDonald St
Mosgiel
1/1/82

Dear Linda,
Thank you very much
for the children's hour during
the holidays. My brothers and
I really enjoyed them.
(so did our parents!) we
found Naseby forest very
interesting.

Thank you
Sarah Lewis



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1. INTRODUCTION

1.1 What is Interpretation?

First it is necessary to clarify the differences between 'interpretation' and 'environmental' or 'outdoor' education. In short, there are none. Both represent educational activities and the terminology is (or should be) interchangeable. However, misconceptions arise from the common images associated with these terms. When you describe yourself to someone as an 'interpreter', the common response is "Oh, which languages?". And when the concept of education is considered it is often dismissed as something just for the kids.

In his landmark book, 'Interpreting Our Heritage', Freeman Tilden gave what he considered a definition appropriate for a dictionary entry under 'Interpretation'.

".... an educational activity which aims to reveal meanings and relationships through the use of original objects by first hand experience and by illustrative media rather than simply to communicate factual information".

Tilden (1967:8)

This deliberately arbitrary definition simply showed that interpretation represented a particular type of educational process. However, as became apparent with further definition, interpretation was implicitly associated with environmental education. Other definitions of interpretation have included:

".... exploration beyond the facts that trees and birds have names. It is finding out that they have a life story interrelated with other parts of nature and with man".

Somerville (1979:1);

".... encouraging understanding and awareness of the natural, cultural and historic features of parks, and how the visitor relates this to his/her total environmental perception".

Burns (1982:9);

".... that body of communications, devices and facilities that conveys environmental knowledge, stimulates discourse on environmental problems, and results in environmental reform".

Brown (1971:77); and

"Environmental interpretation is different. It not only informs, it motivates to action - sometimes it is action. Even at the informing level, it ceases to be innocent nature study or whitewashed history. It questions value systems; folk heroes and conventional wisdom. If it doesn't, it's a waste of time".

Brown (1971:78)

As well as emphasising the environmental education context of interpretation, these definitions also view it as a tool to effect change. Why change would be desired and what form it should take is discussed below.

1.2 Why Interpret the Environment?

Answers to such a question cover a range of objectives from promoting enjoyable experiences in a park to changing the environmental ethics of society. While seemingly diverse, both these objectives are, in effect, integrated into an overall educational approach through interpretation. The 'commons' concept provides the basis for an understanding of why such an approach is necessary.

1.2.1 Tragedy of the Commons

"There appears to be an almost universal tendency to maximise self-interests and a widespread willingness to shift production costs to society to promote individual ends."
(Moncrief 1970: pp511)

The essence of the commons argument is that individuals interacting with a 'commons' (e.g. air, water, public parks/reserves/land/space, etc.) will each exploit the situation to maximise individual self-interest. The cumulative result of each of these individually 'rational' decisions may be collectively irrational. As stated by Edginton (1983:2), "A commons

might be referred to as a situation in which individual utility works against the collective interest". The herdsman example of Hardin (1968) demonstrates this.¹

"The tragedy of the commons develops in this way. Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. Such an arrangement may work reasonably satisfactorily for centuries because tribal wars, poaching and disease keep the numbers of both man and beast well below the carrying capacity of the land. Finally, however, comes the day of reckoning, that is, the day when the long desired goal of social stability becomes a reality. At this point, the inherent logic of the commons remorselessly generates tragedy.

"As a rational being, each herdsman seeks to maximise his gain. Explicitly or implicitly, more or less consciously he asks, what is the utility to me of adding one more animal to my herd? This utility has one negative and one positive component:

- 1. The positive component is a function of the increment of one animal. Since the herdsman receives all the proceeds from the sales of the additional animal, the positive utility is nearly plus one.*
- 2. The negative component is a function of the additional over-grazing created by one more animal. Since, however, the effect of over-grazing are shared by all the herdsmen, the negative utility for any particular decision making herdsman is only a fraction of minus one.*

"Adding together the component partial utilities, the rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd; and another, and another. But this is the conclusion reached by each and every rational herdsman sharing a commons. Therein, is the tragedy. Each man is locked into a system that compels him to increase his herd without limit, in a world that is limited. Ruin is the destination towards which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all."

Hardin (1968:484)

Interaction with the commons may involve taking something out (e.g. extractive/exploitive use) or putting something in (e.g. emission/discharge use). In either case the individual

1/ As cited in Edginton (1983:1-2)

receives disproportionately high benefits, while costs are borne by current and future society. In this situation, as demonstrated by Hardin's herdsman, the end result of such a process is negative for all. Van Matre (1974) makes this point forcefully.

"The American Indian was correct in his characterisation of "mother earth". Intuitively, perhaps, the Indian realised that one cannot destroy the giver in the process of sharing the gifts. It is the ubiquitous goose of the fables. The forest community may provide a certain amount of coal, or lumber, or natural water storage, or a hundred-hundred other commodities, but man can only take so much before endangering the source of that supply itself (how simple the conclusion; how imperceptible the players). To allow the incessant destruction of these communities is to destroy the taproot of our existence" and;

"Make no mistake, there is a malaise upon the land. The film of life glazing planet earth has given birth to a parasitic species of intense destructive capabilities. It seems that men may well perform the heretofore ecologically unthinkable act: either to consume his own community -- or so foul his own quarters as to render them untenable. In Longfellow's words "whom the Gods would destroy they first make mad". And at the moment it would appear that man has taken gigantic steps toward that destiny."

Van Matre (1974:10-11)

Clearly emphasised is the need for humankind to find some solution to the problem of sustained existence in a world of finite proportions.

1.2.2 What are the Options?

[MDE]²

The present situation Moncrief (1970), says is:

"...characterised by three dominant features that mediate against quick solutions to this impending crisis.

1. *An absence of personal moral direction concerning our treatment of our natural resources.*

2/ Excerpt from Edginton (1983). End of excerpt will be indicated by repeat of these initials.

2. *An inability on the part of our social institutions to make adjustments to this stress, and*
3. *an abiding faith in technology.*

A very large proportion of society is implicated in environmental degradation. The magnitude of irresponsibility among individuals and institutions might be characterised as falling along a continuum from highly irresponsible to indirectly responsible"

(Moncrief, 1970)

Little wonder that with such a broad base of interests being threatened by changes in resource based policy, Governments are indecisive and lack courage to change. I, like many contemporary writers on environmental and social problems, believe that solutions can be found in a change of attitude towards nature. There exists in our total range of attitudes and practices, a solution. It is long term and involves a change in ethics, values (economic and philosophical), and a conscience.

A number of the potential sources of such change are discussed below.³

Technology

For commons problems, Hardin (1968), states that there is no technical solution. He defines a technical solution as *"one that requires a change only in the techniques of the natural sciences, demanding little or nothing in the way of change in human value or ideas of morality."*

Moncrief (1970), also says that solutions will not be found in technology, *".... it is one thing to appreciate the value of technology; it is something else entirely to view it as our environmental saviour which will save us inspite of ourselves."* When viewed in human terms, technology is seen not as an end in itself, but as a means to an end. Technology is not our solution, though it is a tool.

Conscience and Law

When individual utility use of natural resources works against the collective interest, society

3/ Some editing of text and minor rearrangement has been done.

introduces sanctions. The mildest is "conscience" while the severest is "law", with the various punishments that go with its violation. Neither works for simple social and psychological reasons.

An appeal to conscience to have restraint will not work, for some will respond less to the plea than others. These persons will benefit more from the social arrangement than those that heed their social responsibility (Hardin, 1968).

Temperance

Another solution is "*temperance by mutual coercion*" (Hardin, 1968). Simply stated this means we must have self-restraint enforced by mutually agreed upon forces - social arrangements promoted through the use of law.

With the herdsman scenario we have seen how individually rational people are collectively irrational, thus how do collectively irrational people mutually agree upon proposed legislation?

History has shown that law does not remove the double bind of appealing to conscience; all it does is shift the sphere of activity from "should I, or should I not" to "will I, or will I not get away with it". While the percentage of the population deciding to 'opt out' from the social arrangement may be less than for the appeal to conscience, the pressure is always present for the percentage to increase.

Secular Change

There is another possible alternative long-term solution to environmental issues; the theory of "secular change". Secular change occurs when we have a change in the social environment. For secular change to occur, we must have deviance within the population, and generally by increasing population size the range of deviance may also be increased.

No doubt every society presents a wide range of deviance, for example the values placed on environment. Values are related to what we consider important, and what we consider important is often dependent on man-to-man and man-to-environment relationships. Where our present values were derived does not really concern this dissertation. Suffice to say that their ancient origins are entrenched in social institutions and religious scripture. By changing dominant values in society secular cultural evolution occurs.

Ward (1979), to whom this section on Secular Change is indebted, concluded that:

"...values on a global scale, in every society, must change. Today more than ever before, should an individual choose to do battle with society and/or the environment, maximising utility to the detriment of the collective, the individual must eventually do battle with himself. There is no way he can win. It is only by promoting the awareness of such a fact that the individual's consciousness will improve to the state where he will realise that by conforming to the collective good he will be obtaining individual good. Education has a major role to fulfil which can be formal or informal.

By promoting awareness we are, in effect, leading society from the bottom (Reich, 1953), as opposed to leadership from the top as promoted through legislature. Social arrangements such as wilderness recreation and interpretive programmes promote environmental awareness. As Leopold (1966) has stated, 'we need a new land ethic, where the concept of community includes not only people but the total environment'.

(Ward, 1979)

A New Land Ethic (from A Sand Country Almanac by Aldo Leopold, 1948)

The present land ethic is a product of social evolution alluded to in the previous section. An ethic ecologically is a limitation on freedom of action in the struggle for existence, and philosophically a differentiation of social from antisocial conduct. In 1948 Leopold wrote:

"...there is as yet no ethic dealing with man's relation to land and to the animals and plants which grow upon it. Land...is still property. The land relation is still strictly economic, entailing privileges but not obligations."

The development of a new land ethic is very much in its infancy. Simply, it enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land. It changes the role of man from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such.

1.2.3 Summary

National Parks provide an opportunity to work towards a new land ethic. By interpretation, nature and the conservation ethics can be promoted. Interpretation is seen as promotion of an understanding and awareness of natural surroundings and our place in them. It is an exploration beyond the facts. Sharp (1976), has stated three major reasons for interpretation; they are:

1. To develop awareness, appreciation and understanding of the total park environment.
2. As a management tool, by encouraging thoughtful use of the resource as a recreation area and by reducing impact on certain fragile or overused areas and,
3. to promote public understanding of parks and public relations.

The important time to reach people, however, is when their values are at the formative stage - as children.

[MDE*]⁴

4/ Excerpt by Edginton ends here.

2. INTERPRETATION FOR CHILDREN

2.1 Why Concentrate upon Children?

"Teach your children what we have taught our children, that the earth is our Mother".
(Chief Seattle, 1854)¹

"If we cannot interest with our treasures those carefree young persons whose minds are at the height of receptivity, how can we hope to interest those adults who are inevitably fogged and beset by the personal and social worries of an uneasy world."
(Tilden, 1967:53)

"The development of a positive environmental ethic within children is a necessary precursor to an ecologically enlightened public."
(Edginton, 1983:8)

[LB]

Interpretation objectives are basically the same for children and adults:

- Awareness and understanding of the 'total' park environment.
- As a management tool.
- Agency understanding and public relations.

Awareness and Understanding

We are often amazed at children's awareness and perception of natural things when they are very small. I was once asked "Why doesn't the stream go to sleep at night?" Children ask the simplest yet often the most searching questions. Somehow this ability is lost as we grow older. We stop touching things, exploring and inquiring and many of us find ourselves relearning these skills.

1/ The full text of this classic environmental statement is reproduced in Appendices. It increases understanding of why we should interpret, and how we might do it.

Through interpretation there is a good opportunity to reinforce these attitudes as children grow and learn, and a chance to teach some basic environmental concepts: diversity, interrelatedness, preservation, conservation. The bonus that parks have is that they are (in many cases) a total natural environment in which one can get immersed. These comments were made in reference to a summer nature programme [by Burns herself].

"...a programme like this can obviously not stand alone, but needs to be part of an overall education towards the natural environment. We can only hope that the experiences were positive for all the children, and for some this programme could spark an interest in the environment which will further knowledge."

Management Tool

"Future protection of National Parks will be in the hands of today's children."
(McSweeney, 1979.)

Children are the decision makers of the future. Interpretation programmes can give children a responsibility towards use of the natural environment and a respect for cultural and historic heritage. This can have specific learning goals; bushcraft, mountain safety, environmental camping. A good example was in the Naseby exotic forest when the fire danger was high over summer. Children were given a sheet to colour-in with a 'care for your forest' message, and on the back for the parents, the messages and requirements concerning fire safety.

Interpretation for children can and should provide a link between the interpretation available to adults. Children will often see things more clearly and in more 'black and white' terms than do adults. Reinforcement of the concepts and knowledge that children are exposed to should also be available to the adults - thus giving continuity of knowledge and experience.

Public Relations and Agency Understanding

There seems little doubt that from the parents' point of view, children's programmes, and special facilities in visitor centres, are great. It gives children opportunities not otherwise open to them, and gives the parents some breathing space. One parent commented to me after a particularly enjoyable children's hike, "This is the first time I've really been happy with where my taxes are going". This aspect of public relations can hardly be stated enough, but on the other hand, it is important not to see these programmes as just 'babysitting ventures' by the agency.

"Interpretive efforts aimed at youngsters may benefit from the perspective that considers children as legitimate tourists."

(Machlis 1977:3)

Children are a diverse group of visitors who come to the park for many different reasons and need to be seen as a valid user group.

Facilities for children, both active and passive, are excellent public relations. They can not only explain agency policies, but simply make the agency more approachable. If children find the staff and visitor centre approachable they are more likely to search it out in another area.

Special programmes for children are a great success. Both children and staff are away from the constraints that the education system can place on them; yet they are often very open to learning. As mentioned, children are on holiday; their memories relating to this time, due to family and social situations, are often strong. They choose to be there. And for the staff

"Children's programmes give staff the ability to expand and develop new interpretation skills". (Bamford, 1982:3)

[LB*]

Due to the often underestimated awareness, understanding and learning capacity of children, they are the ideal focus for environmental interpretation. However, as noted by Burns, they

represent one of the population groups not being adequately catered for in interpretation services. Underlying this deficiency has been a lack of recognition of fundamental differences in learning abilities and means between adults and children. The following section deals with the special learning regime of children.

2.2 Children's Learning Processes

"A man told me the story of his visit to a National Park Visitor Centre with his son. As they were inside looking at the displays, the boy called his father over. He wanted to know what type of animal a 'DON'T TOUCH' was."

(Burns, 1982:4)

This example illustrates a common inadequacy of interpretation from the child's point of view. Many of the approaches taken within interpretation do not consider the child's perspective, even for things as simple as the heights of notices and displays.

"Interpretation addressed to children (say up to the age of 12) should not be a dilution of the presentation to adults, but should follow a fundamentally different approach. To be at its best, it will require a separate programme.."

(Tilden 1967:47)

The reasons why such a separate approach would be necessary for most effective interpretation effect, are apparent from the features and development of children's learning processes.

[MS]

According to Erikson (1967) young people have an infinite ability to absorb knowledge; they are generally not hampered by emotional and mental stresses, nor great physical growth. They are experiencing major development of initiative and imagination between approximately two and six years of age. This is followed by a stage of 'industry' between approximately six and 12 years.

At this stage of development children are less inhibited than they are at other periods of life. Thus they are not afraid to use their tactile senses nor ask a multitude of questions. It can be considered an ideal period of human development in which to introduce children further to the world of nature. What people learn as youngsters, and that which is firmly fixed in their minds, is likely to be carried with them throughout life. People's attitudes and behaviours are often the results of early social experiences. This is based on the theory that human development occurs in stages.

[MS*]

[LB]

"Children are fundamentally different from adults in their perceptions of the world and their physical capabilities."

(McDonough and Machlis, 1978:2)

Children grow through various developmental stages though always on a continuum. This growth can be looked at in terms of physical and mental growth.

Physical development is the most visible. There are two main stages; large motor development which involves the movement of arms and legs, running and hopping; and small motor development (wrists, fingers, using tools, spoons, etc.). Girls are usually physiologically more mature than boys of the same age. Mental or cognitive development is the way the child perceives the world around him/her. How they think and understand is based on this.

Understanding these changes is important when relating to children and hoping to share knowledge and attitudes with them. The following is a simplified precis of the changes that occur within three broad age groups: pre-school, school age up to 10 years, 10 to 12 years. One must be aware that these are generalisations and individuals will vary.

Pre-school

Children of this age are usually energetic and active, not remaining still for long periods of

time. *"Young children need to move because this is a central way they learn about the world."* (McDonough and Machlis, 1978:3) Neither large nor small motor co-ordination is developed. (Don't give them a delicate artifact to carry.) They are beginning to develop language skills and are able to classify things. They see likenesses and differences, and senses are important. They have an awareness of themselves and their sex roles.

School Age Five - Ten

Physical growth is less rapid at this age and children are more uniform in size, large motor co-ordination has developed, but not small. They still mainly use large muscles, and movement and activity are still important. They can classify objects and see connection between groups and individuals (e.g. they can understand that both sheep and seals are mammals). They can understand and draw conclusions from concrete, but not abstract things, e.g. 'conflict' would be seen in purely physical terms. They are beginning to define their values.

Pre Adolescent Ten - Twelve

There is a lot of physical growth in children at this age and this takes up a lot of their energy. They tend to tire easily. Small motor co-ordination appears though they are still clumsy and awkward. There is an understanding of abstract terms and as the children grow into adolescence they begin to mentally manipulate concepts, demand explanations, and discuss problems and solutions.

[LB*]

Edginton (1983) presented a table from Machlis and Field (1978) which gave a detailed summary of development phases of childhood. This is presented in Figure 1 (overleaf), and an excerpt of Edginton's comments related to it follows.

[MDE]

Interpreting for Different Age Levels : (Machlis and Field, 1974)

Figure 1 (p.17) forms a useful guide to the development phases of childhood. As can be seen, each phase includes both limiting and motivating influences. Children's interpretive programmes need to exploit those characteristics that act as motivators.

These phases are purely conceptual, and it must be remembered that there is a continuum of development wherein physical, emotional and cognitive change occurs gradually. These changes also occur at different chronological ages from child to child and vary with generations. To complicate matters further, children may be in transition from one phase to the next, or may just be developing at a slower chronological rate.

"For the pre-schooler, who is cognitively just beginning to make associations of cause and effect, interpretation of simple natural relationships can be terribly exciting. They have abundant energy and large active movements. Their interest span is short, and interpretive programmes should be constructed in small sequential units. They are primarily self-centered and work better individually. The pre-schooler is concerned with scale and 'big and small' are important concepts."

(Machlis and Field, 1974)

The school age phase is entered at about five years of age and cognitively comparison now becomes the prime means of analysing information. For example, comparisons of adult Rimu trees and seedlings could make the information about three growth come alive for school age children.

Physical growth at this stage becomes more gradual and tentative relationships outside the family are being formed through to pre-adolescence at about nine years of age. There is a wide variation in development from child to child, and interests and curiosity vary even more. Group life is at this stage becoming more important and parent substitutes are sought in teachers and group leaders. "There is a striving to attain skills and a concern with things rather than ideas"; for example, "A living history" programme where children could learn

about Maori basket weaving, flax dyeing and take what they make away.

"This concern for things rather than ideas changes as the adolescent phase begins at about 12/13 years of age. There is a desire for intellectual freedom, and for authentic information with which to make independent decisions."

(Machlis and Field, 1974)

[MDE*]

Both excerpts from Burns and Edginton show development of child learning processes through a continuum of distinct changes. Clearly for interpretation to be effective in reaching children, identification of their developmental stages and selection of appropriate interpretive means is essential.

[LB]

Children bring to parks a variety of backgrounds, personalities and interests. The social context will help determine their experience. Basic knowledge and attitudes to the environment will vary according to education, social class and race. Interpretation programmes present opportunities for growth and independence from parents, and parks may be a good place to experience this. Some children may be used to and happy with the group situation. It is important to be aware of group dynamics as they can make or break a programme. There may be obvious leaders within the group, split-offs with friends, boys versus girls, etc. There should be opportunity for quiet times alone as well as group activities.

[LB*]

Burns (1982) also made an important distinction between formal and informal contexts for children's interpretation. Two main types of children's groups were identified and their distinctive features listed (see p.18). The formal group was characterised by school visits while the informal group represented unstructured visits by small groups of children or individuals.

Figure 1: Development phases of childhood. Adapted from Gertrude Wilson and Gladys Ryland, "Social Group Work Practice" (1949), (Machlis and Field, 1974).

Developmental	Age	Physical Development	Cognitive Development	Socialization	Adult Relationships
Pre-school	2-5	Growth rapid, but is slowing down. Abundant energy. Active movements. Males and females develop at slightly different rates; equalize at about five.	Developing memory, vocabulary. Making associations of cause effect. Primarily learns through the senses.	Self-centredness. Bases relationships on what he or she can "get" from others.	Primarily the caring person, usually the usually the mother.
School-age	5-9	Growth more gradual. Finer muscle co-ordination, yet active movements still required.	Interest span increases. Comparison becomes important.	Strong group loyalties with peer relationship very important.	First break from home home begins relationship with other adults.
Pre-adolescent	9-12	Desire fine muscle co-ordination. Strives to attain specific skills. Wide variation in development.	Concerned with things rather than ideas. Ability to articulate curiosity.	Learning to co-operate and enjoy group life.	Need to find parent substitutes in teachers and group leaders.
Adolescent	12-17	Onset of puberty. Rapid growth and development and lack of fine motor co-ordination. Awkwardness due to growth. Girls developing faster than boys.	Interested in ideas. Seeks specific and authentic information. Desire for intellectual freedom.	Needs peer support. Testing tentative adult relationships.	Conflict with adults. Desire for independence.

[LB]

School Group

- Controlled formal
- Has preparation, back-up, follow through
- Each group shares similar characteristics
- Ranger can know audience before
- A school situation
- Children seldom have a choice to be there

Informal Visitor

- Uncontrolled - only by parents
- No formal preparation or back up
- Each child - vastly different background experiences
- No knowledge of audience make-up before
- Children were relaxed
- Choose to be there

[LB*]

Often the 'school' group is associated with 'environmental education' rather than 'interpretation'. This distinction in terminology reflects more upon the clearly different interpretation contexts required rather than any fundamental difference in interpretation objectives and approaches. As with the dissertation by Burns, this paper is orientated toward the 'informal visitor', although insights made here will have general application for all types of children's interpretation.

3. INTERPRETATION FOR CHILDREN: APPROACHES

Given the optimal learning ability of children, the implications of this for achieving interpretation objectives, and the special characteristics of children's learning development, the key question for interpreters is "How do we reach the children?" As previously stated in a quote from Tilden (refer p.), the answers to this question involve development of distinct programmes. These must aim to meet the special learning needs of children at different stages of their development.

[MDE]

There are, according to Machlis and Field, three basic approaches to interpretation for children. They are:

- | | | |
|----|--------------------|-------------------------------------------------------------------------------------|
| 1. | Action | - children learn by doing |
| 2. | Fantasy | - the region where reason and experience ends and imagination begins |
| 3. | Instruction | - the importance of information for children is directly related to its usefulness. |

1. Action

Physical skills are learnt by imitation and repetition. "They want to be able to do things and are not content with being told." Action is also valuable in the development of interaction with others and "helps them to empathise with others' emotions".

2. Fantasy

Fantasy is a personal thing, and "to the child there is a potential for fantasy within every experience interpretive displays that encourage fantasy can spark interest and involvement, even though the display itself may be quite static". Fantasy plays such an important role in a child's interpretation of the world, it should be used as a motivator in children's interpretation.

3. Instruction

To be of value, instruction should concentrate on providing information that can be directly

incorporated in the lives of the children. "For youngsters, the importance of the information is directly related to its usefulness", for example, it may be interesting to know how to identify certain plants in the bush, but it is much more alive when the medicinal uses of those plants is known also.

[MDE]

In reality, these three approaches are integrated, with the mix depending upon the age (and stage) of the children being aimed at. Aspects of all are included whether the interpretation means be visitor centres, displays, notices, walks, talks or special programmes. This is apparent in the extensive excerpts¹ that follow. The first by Burns discusses visitor centres and the logistics of interpretation programme organisation, the second by Edginton discusses visitor centre displays, and the third by Somerville presents a hypothetical interpretation programme.

1/ Editing of excerpts has been undertaken.

3.1 Excerpt from Burns (1982)

- A. Visitor facilities
- B. Interpretation Programme Organisation
- C. Interpretation Ideas/Resources

A. VISITOR FACILITIES

A.1 Visitor Centres

"Visitor centres are for big people. Sometimes they are dark and the things on the wall are too high to see. There are things to touch, but they are behind glass. Everthing is too flat. The best things are the stairs to run up and down on and the slippery floors."
(A child's comment)

There is no doubt that visitor facilities in New Zealand are, in general, designed for adults and often ignore the needs of children. More recently, however, it has been recognised that what appeals to adults are often the simpler, more 'living' things that also appeal to children. This is reflected in the newer visitor centres and display designs.

Ideally, to cater fully for children, would require this to be the primary objective of the visitor centre. In the United States, special children's museums have been started; the emphasis - a 'hands on' approach. *"Here, visitors manipulate actual objects and use the exhibit materials to create their own experience."* (Simons, 1975:2). They have such diverse activities as: an exhibit of a full-size kitchen with everthing exposed - joints, wiring, plumbing; to cultural exhibits where children literally walk in and 'live' another culture for a short time.

However, in New Zealand we are concerned with visitor facilities that already exist and for the most part cater primarily for adults (12 years and above). How then can we make these existing facilities more amenable to children?

A.2 Personnel

Important to both children and adults is the manner of the person at the reception area. Giving some time to children, talking to them, offering any available information to them rather than waiting to be asked, and a friendly smile, will make the building more approachable to children. This is obviously dependent on the situation. In many cases, the receptionist will be very busy and may not have time to spare, but if children are seen as valid tourists their information needs should be catered for as with the adults.

A.3 Displays

There are a few points that can be incorporated into general display design that would make them more attractive to children.

- **Bright Colours:** Colours that are attractive to the eye give a room a warm, alive appearance. For instance, the new display room in the Arthur's Pass Visitor Centre. Here I saw a child run his fingers down a painted waterfall on a display.

- **Touchy/Feelies:** *"If we are able to touch, to feel, to participate in and experience, that experience becomes personal."* (Simons, 1975:1) Mt Cook National Park Visitor Centre has achieved this well with their climbing display. At a very low level real climbing gear has been inset into a panel, giving everyone a chance to touch it. Various Forest Service displays have historic logging equipment, chainsaws, cross-blades (always blunt for safety reasons) - another 'touch' display (e.g. Naseby and Hanmer State Forest Visitor Centres and Catlins Forest Park Visitor Centre.) This is also important to children and adults with sight disabilities. Feel boxes. A tray, or a box with different levels; covered by cloth or card, that a child can put his/her hand into and guess what the object is. Everybody loves a mystery. It can contain things like dried up lichen moss, a piece of a bird's nest, unusual rock, bone, an historical artifact.

- **Low Levels:** Children love to find things at their level. This has been well incorporated into general displays at both Arthur's Pass and Mt Cook. Insets of birds and insects have been set into a panel of different levels - some just at the right eye level for children. The human history display at Arthur's Pass also has photos of children in the park at ground level.

- **Displays with Movement:** Children love movement - a light going on in the familiar press button displays, volcano exploding models (as at both North Egmont and Whakapapa Visitor Centres), or something living! These could vary from a small plant community, an aquarium, growth of individual plants showing various stages of growth (e.g. spore to fern).

- **Display Boards:** One of the most popular and easily managed actions is to have a large display board for children's art work - either contributed by school groups, nature programmes, or done on the spot in a small children's corner. A Ranger at Mt Cook comments on their board in Park Headquarters.

"Kids love to see their own work presented publicly. (It) is very useful in also getting through to adults, because: (a) some of it is very funny and humour is good for people - adults especially. (b) The things kids often say are blunt but true and you couldn't say them yourself and get away with it. (c) The kid's point of view is often different, e.g. we had a child's painting of the Hooker Valley full of power poles - which adults had overlooked."

(Heine, pers com)¹

- **Children's Corners:** Some display facilities can be collected into a small area which is set aside for children. Children's books (well covered), games, quizzes, colouring can be available here. Especially if it is their size, younger children will identify with this.

A word about labels. This depends on what the article is and whether you feel it is 'worth' labelling. They can often detract from the impact of an object. If things are labelled, make them bright colours, easy to read with simple language. Often just one word will suffice, e.g. 'TOUCH' 'SMELL'. Sometimes more stimulation may be needed, e.g. "Sue brought

1/ Ranger at Mt Cook National Park.

in this bird's nest today. It fell from a tree. Look closely at it. What has been used to build it? Why, do you think?" (Somerville, 1979:17)

A.4 Publications

- **Books:** There is an abundance of good children's literature available at present; including a lot on the natural environment. Most has been written and orientated to the overseas audience. However, more NZ books for children are now being published; both longer story books for older children and picture books for younger. Some of these have a natural or cultural history background. The most prolific producer of conservation material is the Nature Conservation Council with their conservation week material - games, posters and booklets.

- **Colouring Books:** These can be used in many forms. A simple booklet about natural and human history of a park with pictures to colour, quizzes, mazes; and some basic information about the area, e.g. Tongariro National Park 'Fun and Activity Playsheets'. This is a printed A4, 12 page booklet, adapted from an American Park book (see Appendix Two). Nature trail booklets can be designed on lower quality paper with less detailed drawings so that they become suitable for colouring - similarly simplified park maps.

- **Games and Quizzes:** Another good learning medium. The Nature Conservation Council has produced some dice games with an environmental basis which could be adapted to specific parks. The Visitor Centre at Mt Cook has a special quiz for children with questions about various aspects of the park - all answered by looking at the displays (see Appendix Three).

- **Small Publications:** Mini park-handbooks with colourful drawings and photos could be aimed at older aged children. These could be used by park visitors and also for children in school projects.

A poster about Nelson Lakes National Park has recently been produced for school children. It is double-sided, a photo on one side and written material and photos about various aspects of the park on the other side.

This type of material can be given out at the reception area - or even better, included in the children's corner with other available material (e.g. the Nature Conservation Council material). The potential for children's publications in parks has hardly been touched.

A.5 Nature Trails

These are one of the few forms of non-staffed interpretation that provide the opportunity for actual experience. (A comprehensive discussion of this topic in NZ is found in 'Nature Trails', a Dissertation by Doug Crosby.)² There is always the difficulty with nature trails (as with displays) in trying to cater for a multitude of visitors' needs - from the tourist who wants a five minute breather from the bus, to the family group who want a leisurely afternoon's walk.

In NZ parks, self-guiding trails consist of either a leaflet (sometimes with marker points), or plaques on the track. This obviously cuts out younger children with poorly developed reading skills. However, this age group will usually make their own explorations rather than want to stick to a structure. Older children (over eight), and people with lower reading ages can be catered for without setting aside a specific trail for them.

The Arataki Nature Trail in the Waitakere Ranges (Auckland Regional Authority), combines the needs of many groups with a three phase walk: a short identification walk which caters for those with a specific interest in botany, and a double loop walk that looks at the forest ecosystem in terms of concepts rather than specifics: dependence, maturity,

2/ Not included in this paper as deals with Nature Trails in general rather than in the children's interpretation context.

struggle for survival. It is used extensively by school groups and the Auckland public.

The following are some ideas which, if included in their design, would make nature trails more appropriate and attractive to children:

- **Involve the Senses:** Too often we forget that most of us have the use of five senses: listening, touching, smelling and sometimes tasting are all open to be used in the natural environment. Some nature trails have been designed with this particularly in mind and give not only the sighted, but blind people too, an opportunity to experience the environment in a 'new' way.

- **Variety in a Trail and its Site Stops:** Don't make all the stops just views and descriptions of trees and landforms. Concentrate some on the ground to look at little things. Make use of water (streams, ponds, lakes) if at all possible.

- **Questions:** Rather than stating the facts about the area, give the walker the opportunity to think. "Notice the different layering of the rock. Why do you think this is?" This involves the person, rather than treating them simply as a receiver of information.

If appropriate, include articles of human history, e.g. Makarora Nature walk has a sawpit with a saw through a large log as found in the forest. In some cases, efforts to provide more interest for the children will also benefit adults and vice-versa.

B. INTERPRETATION PROGRAMME ORGANISATION

Logistics of running an interpretation programme for children are always on the top of people's minds. "How will we staff it?" "What about money?" "Wet-weather?" "Safety?" "But I don't know the first thing about kids!". Planning will not make a programme perfect,

but will help account for all those initial and last-minute hassles. The greatest flexibility comes from a programme that is well-planned.

B.1 Staffing

As with any recreation/interpretation programme this is vital, and especially with children. Adequate staffing is important not only for safety and the logistics of coping with large numbers, but also the quality of experience. 'Staff/child ratio' is a term that may spring to mind. Do not be daunted though. Although it may seem that large numbers of staff are needed, this is not always the case. It depends on each activity. A short walk, story-reading, or some games with an older age-group of 15 kids may only require one or two people, compared to an overnight hike or an activity with 30 under six year olds, which may require four staff.

In general, if programmes have a wide range of ages, say three to 12 year olds, having two staff members is essential, as any activity for a three year old will almost certainly be unsuitable for a 12 year old and vice-versa. For children six years and under, any activity that takes them away from a controlled situation (e.g. Park Headquarters) must have more than one staff person with a group larger than six. Accidents, however minor, occur easily and young children cannot take responsibility for themselves while you are attending to a mishap the way older children can.

However, the optimum number of staff will not always be available. The solutions then are to:

- (i) modify the activities so that minimum staff are needed (i.e. activities suitable for large groups, requiring little supervision, and close to help if accidents occur).
- (ii) Restrict number attending.
- (iii) Find voluntary help elsewhere.

Looking at that last solution, the obvious people are parents or older siblings. These can be a boon or a real hindrance. In general, they are suitable for younger children who don't feel as inhibited by parents and often feel a little more secure. The opposite usually occurs with older children. Their parents are often unwelcome. If any parent, brother/sister, or voluntary person is to be involved, it is important that they are not just onlookers, but full participants. It is also useful to be aware of any local or visiting talents (e.g. historian, puppet-maker, musician), who may be willing to volunteer some time and give the programme more variety.

B.2 Staff Suitability/Attributes

The most obvious attribute is that the person must like and enjoy children. Someone may feel they have no experience with children, but one can often draw from people's experiences with their own children, younger brothers and sisters, or relations (maybe our own memories). Confidence and initiative are also important attributes. Children will, far more than adults, make it known to you that what you are doing is unsuitable and boring. An awareness of this and an ability to adapt will help make a programme flow past those boring moments.

Enthusiasm is often stated as the most vital attribute a person can have with children. This doesn't necessarily have to take the form of an extrovert 'bubbling' personality, but may be someone who can relate to children with honest and fun.

Experience is always the best training. Obviously people have to start somewhere - familiarity with all activities is the first step. Many rangers may be attuned to some ages of children through school group visits. For someone who hasn't had this contact, a visit to the local school may be valuable.

A final comment is that working with children is exhausting; physically, mentally, and sometimes emotionally, and should be recognised as such.

B.3 Control

You don't need a loud voice, but it helps. Control is an important area which often puts people off on their first attempts with children. How do you control 60 kids on the rampage? The first thing that comes to mind is staff numbers, but as previously mentioned, the ratios are not always ideal and thus other methods may be necessary.

Though not directly related to control, reassuring parents that their children are safe and well looked after, where they are going, and when they will be back - is very important. Then set the scene with the kids - tell them what they are doing unless mystery is part of the activity. Be prepared to change with their moods and needs. You will soon know if the children want to climb the trees instead of 'hug' them. A group of kids doing what they want to do is a lot easier than the opposite. If you can learn the children's names - a handy control mechanism. On a walk - have a buddy system (each child has a partner to watch for). Don't forget First-Aid kits, toilet stops and runny noses.

B.4 Programming/Site Planning

An inventory of available resources and sites is the first step in planning any children's programmes. Is the key resource historical, natural, cultural? Close at hand or some distance to travel? At one site or many? Indoor or outdoor? It may be necessary to have various sites available to you, e.g.

- (i) an area of soft ground for large games;
- (ii) sheltered area with more privacy - possibly close to walking tracks - that is more suitable for more intensive activities;
- (iii) an indoor area (park headquarters or local school/hall/campground recreation room) for wet weather and indoor activities. If a programme is continuous over a period of days/weeks the same area should be the meeting place each day. Familiarity with the sites to be used, especially walking tracks, is vital. One lost child can ruin a whole programme.

When potential and limitations of sites and resources have been assessed, and an idea of the age group and type of activity is formulated, then the more explicit programming of activities will start. This is the time to tie in with other parts of the programme, e.g. take the children for a history activity before an evening programme on history. They may stimulate their parents to attend! Be aware of other activities happening in the community also. Charts with the activities outlined will be useful both in long-term planning and in on the spot programming (examples below).

Activity Schedules

<u>Activity</u>	<u>Detail</u>	<u>Site</u>	<u>Age</u>	<u>Time</u>	<u>Wet/Dry</u>	<u>Materials</u>
Rock strategy	Collect rocks Sensory activities Plan your 'home'	Anywhere	5+	20 min	Both	None
'Unnature' trail	Place camouflaged rubbish on track, to be found.	Track	7+	30 min	dry	Rubbish

Pre Programming Planning

Day before:

- . Staff briefed
- . Materials ready
- . Activities planned
- . Wet weather alternatives
- . Special equipment ready (e.g. for camp-outs)
- . Safety aspects

Go:

- . Parents reassured
 - aware of - site
 - timing

After:

- . Debrief
- . All OK?
- . What went wrong?
- . Do it again?

Evaluation

B.5 Finance

Another burning question - "How much will it cost?" Discounting labour costs, the finance required is minimal. Cost effectiveness is good, and programmes, if successful, achieve many objectives of interpretation.

Money would usually be spent on materials for art work and games - much of this can be begged or borrowed from government stores; local schools may help out with crayons, paints, etc., and lots of materials, newspapers and magazines from the local community. After initial outlay, one year's expenditure may be negligible. A special activity that requires 'one-off' expenses like a barbecue, can usually be paid for by children.

If children's programme becomes a common activity in summer nature programmes, it may be worth investing in some books - story or reference; building a stage for a puppet show, or special seats/tables at the activity site.

B.6 Publicity

This follows pretty much the same lines as does general publicity for any interpretation programmes; using the media (radio, television, newspaper, Public Relations offices).

Advertising around schools and campgrounds can be useful - active canvassing the most successful. It is important to have correct and thorough information about equipment/clothing needed/times/meeting places/age groups. It may also help if other staff know the details (e.g. receptionists, rangers) as they may be asked at other times.

The best advertising is generally word of mouth, and if a programme is successful in the first few sessions, you may have too many attending rather than not enough.

B.7 Evaluation

It is easy for teachers, interpreters and people involved in outdoor education to become involved in their activities, be successful with them, but never stop and ask "Is this achieving its objectives?". A person may think that what they are doing is 'right' and of great worth, but this is clearly very subjective. The objectives in most cases are hard to measure.

Neil Clifton's study of rangers' interpretation programmes given to school groups at Arthur's Pass National Park concludes that *"educational goals are capable of being achieved, but are not being met with current interpretation programmes; it is clear that effective park interpretation programmes are possible."* (Clifton, 1981:68). It is difficult to gauge the effects of continued exposure to such programmes; little research has been done on this. Clifton outlines two evaluation programmes in American park programmes, one showing positive changes to attitudes towards the environment and park values, the other being neutral. It is important that on one hand programmes are not seen as the panacea for giving children park values, and it is equally important that interpreters become as aware as possible as to the effects or non-effects of the programme. This area requires much more concentrated work.

C. PROGRAMME IDEAS / RESOURCES

C.1 Indoor Activities

C.2 Living History

C.3 Resource Material

C.4 Outdoor Activities

C.1 Indoor Activities

Generally programmes will be run outside as much as possible, but sometimes this is not

possible, i.e. during wet weather or winter evenings when you are swamped with 40 children inside the visitor centre. These are a few ideas to keep you and them happy. Many of the activities are equally suited to the outdoor setting and vice versa.

- **Visuals:** Films should only be used where appropriate. They can be used as fillers rather than organising a separate programme. Try to avoid overkill of a good movie, e.g. 'The Lorax'. Incorporate films into a programme rather than having them stand alone. Similarly, slide shows need to be used with discretion. Depending on the age group, the attention span for watching slides may be short. However, they may provide a good supplement to some programmes, e.g. endangered species.

- **Stories:** Again with discretion, stories can be used, as fill-ins, to quieten a group, or as valuable tools for introducing a concept or tying up a lesson. They can be good stimuli for art work.

- **Games, Competitions, Quizzes:** (as mentioned in earlier): They can also be used as fillers when children are arriving or there is a gap in activities.

- **Talks:** There may be people in the area, either visitors or locals who have something special to share with the children, e.g. some Burmese visitors gave a talk to the Tongariro Children's Programme about their home. You may like to encourage the children to give their own talks.

- **Drama:** Children learn through play. Drama and roleplay are good mediums for learning concepts and attitudes. Learning about the past will be covered in the next section; much can be played about the present. Roleplay can be used about park and environmental issues, e.g. with older children lobbying between different park interests such issues could be roleplayed. You could try situation roleplays "You are tramping and one of your party has signs of exposure. Show what you would do." Younger children enjoy miming. This is a good medium for learning about various animal and bird habits and behaviour.

- **Puppetry:** In its many forms this is very popular with children. At a simple level, puppets can be made 'one-off' by the children with paper bags or old socks. These can be used for re-enacting legends, history, or roleplays. One stage further is to produce a puppet show for either a child or adult audience; using children as puppeteers, e.g. The Tongariro Summer Nature Programme in 1980/81 produced the legend of Ngatoroirangi for an evening programme. Puppet shows have also proved valuable for conservation week programmes when rangers often visit a large number of children with a limited amount of time.

- **Art Work:** This is obviously not restricted to indoor areas, in fact, many types of art work will supplement outdoor programmes.

Some activities to try:

models	face painting	finger painting
jewellery	collages	colouring
instruments	murals	masks
rubbings	mobiles	animal badges

Use natural materials if possible:

leaves	lichen	pinecones
twigs	bark	flax
shells	seaweed	fruits
driftwood	bones	seeds

These materials are also good to have on hand:

paper newsprint	paint	containers
computer paper	material scraps	crayons
scissors	magazines	pens/pencils
paste		a soundproof room

Children's art work is really good to display. It gives children the freedom to express themselves other than verbally and often interesting and honest observations will show up.

C.2 Living History

"I hear and I forget.
I see and I remember.
I do and I understand."

(Chinese proverb)

History is often seen as a dull and boring subject by children. It is important in identifying past and present human values. Living history gives children perspective on the past. It involves learning about history by actually reliving the past. It can vary widely from acting out a Maori legend, to a full scale costumed re-enactment of a battle as occurred in the Egmont Summer programme 1981/82.

There are a few important points to be aware of when undertaking this kind of programme:

- it requires a lot of research and in many cases detailed planning.
- The activities should be few and simple, but it is important that the details be correct. Children will remember what they did, rather than what you tell them. Be authentic.
- Avoid making personal judgements on events in the past.
- Relate to the present and the familiar. Children will be interested in day to day things like clothes, food and shelter.

If you are running a living history activity in a summer nature programme, in most cases there will be no opportunity for preparation by the participants. Therefore it may be difficult to set the scene of the activity. This may take quite a while, but this is the fun of the activity. Having children choose new names is a good starter, and you may like to assign specific roles.

The following is some children's account of a very successful living history day undertaken in the Naseby Holiday Programme by the New Zealand Forest Service.

Gold Fever

"First of all we went to the museum, where we split up into groups, some going into the museum to see things that were used when the miners were in Naseby, i.e. photos,

breadcutter which cut our bread for lunch, an oldendays shop which had things from the olden days that you could buy. The other group went over to look at the old waggons, jail and chaff cutter and other tools used by the farmers. Then we all joined together and walked along the Hogburn Gully, getting there by going up a track.

We went to the water race and had a drink then someone called "Gold Rush!" and we all rushed down the track to Hogburn Gully and started panning for gold. Some people even found some.

We all stopped for lunch which was what the miners would have eaten - home-made bread, cheese and billy tea without milk.

After lunch we could either go gold panning or make mud bricks. These were made by mixing water, mud, sticks and small stones together and putting it in wooden frames.

Everyone enjoyed themselves - we even made our own bread rolls - and to make the day more realistic, we all chose names that were miner's names, like Benjamin, Jessie, John, Goldie, Cecil, and Marlborough. We trudged our way home through the rain back to Naseby."

Jackie and Lachlan Weir. Aged 8 and 10.

C.3 Resource Material

There have been many books written about activities for children. Some are just rehashes and others are 'pure gold'. The following resources are such of the latter sort. They are both inspirational and practical.

- **'Cowtails and Cobras'**. A guide to ropes courses, initiative games, adventure activities. Project Adventure. 1977.

- **'The New Games Book'** New Games Foundation. Ed. Andrew Fleugelman. 1976
Dolphin Books/Doubleday and Co. Inc: Garden City, New York.

These are two excellent books full of active games for both adults and children. The New Games book also has a good description of planning a New Games Festival. This concept has been used by the Auckland City Council in its 'People in Parks' programmes.

- **'Manure to Meadow to Milkshake'**. Hidden Villa Environmental Education. Jorgenson, Black, Hallesy, Hidden Villa Inc. 1978, Los Altos, California.

This book is based on teaching strategies used in an environmental education project in San Francisco. It can be adapted to many settings, urban, rural, natural, inside or outside

classrooms. As the title suggests, the book explores the relationships within nature and that between nature and humans. It includes puppet shows, stories, songs and specific strategies, each including outlines of insight, preparation, action and follow-up. It covers a broad spectrum, expanding perception and awareness of nature, an interview with the earth, recycling picnics, and 10 ways to bore the dickens out of your students.

- 'What's Happening' > Environmental Living Programme,
- 'Getting There' > Mary Lou Bildi, US Govt Printer,
- 'Who's in Charge' > Washington.
- 'Have We Forgotten Anything' >

These are four well set out booklets on living history programmes. Although they are very American oriented with a lot of substance not very applicable to the NZ situation, they are very stimulating and explain well the objectives and potential for this type of programme.

- 'Acclimatization', 'Sunship Earth' - Steve Van Matre. American Camping Association, Bradford Woods, Martinsville, Indiana.

Van Matre's first book 'Acclimatization' was published in 1972 and is subtitled 'A Sensory and Conceptual Approach to Ecological Involvement'. The book was written from many years' experience with children and camping. Van Matre immerses you, when reading his books, into this world in the same way he immerses the children, literally into the world of nature. The children are exposed to ecological concepts by way of 'total experiences'. This book and his subsequent follow-up 'Acclimatizing' outlines the activities in specific terms and also looks at nature awareness at a more personal level with Van Matre's philosophies. His latest book 'Sunship Earth' is a description of a programme he runs at an outdoor/environmental education centre in Oregon. *"The Sunship Study Station is a special place where young people live, what they learn and learn what they live. Their programme is both the concepts - such as energy flow or the water cycle, and the feelings - how a handful of soil looks close up, or what a forest sounds like at dawn."* Van Matre's approach has been extremely popular in America. His books are well worth reading.

- **'Sharing Nature with Children'** - Joseph Cornell, Ananda Publications, California.

This small book is a masterpiece in awareness activities. Cornell has incorporated his obvious love for nature with some practical games for children. Most of the activities are applicable to the New Zealand situation. The advantages about Cornell's book are that it is small, easy to carry with you, very well laid out, and has an excellent index. The games are divided into three moods - calm/reflective, active/ observational, energetic/playful. There are short half hour games and suggestions for longer, more explorative activities. As a tool for a person interested in sharing the outdoors with anybody - child, adult, friend, parent - this is truly one of the best guidebooks.

- **'Children's Interpretation': A Discovery Book for Interpreters.** - Gary Machlis and Maureen McDonough.

This booklet was written for interpreters in the US Park Service and has a strong emphasis on linking interpretation for children with their physical and mental development. A good source book for child development as it is not too technical.

C.4 Outdoor Activities

This section includes a wide variety of activities and games for out-of-doors. Some will be suitable for including on an interpretative walk, with adults as well as children; others will be programmes in themselves requiring either a large, open space or a private space near a bush edge. Although it is hard to delineate, I have grouped these activities into active, reflective and inquiring. You may be able to team them up with the mood of the children, yourself and your aims for the programme.

C.4.1 Active Games

Demonstrate park equipment, e.g. fire fighting, radios/Fly kites/Plant trees/Sand castles/Overnight camping/Hide and seek.

- **Silent Stalking:** (four to eight year olds): One child is at the front with back away from the group who are trying to sneak up on her. Whenever she turns around and catches someone moving, he must go back to the start. First to 'stalk' the front person takes over.
- **New Games:** are noncompetitive (in most cases), fun games which rely on team work and initiative. These are a few of my favourites:
- **Knots:** Group (up to 10) in a circle. Each person reaches across the circle with left hand and holds another. Then with the right hand. (It must not be the same person.) You now have a human knot to untangle without breaking hands. It should always work, to end up in a circle again.
- **Lapsit:** All in a circle facing inwards. Move closer till everyone is touching. Turn all in the same direction and tighten the circle. Hands on the person in front's waist and on a count 1..2..3.. you all sit down on each other's laps. Everyone is supporting each and no-one carries all the weight. It may take a few tries to get it right as everybody laughs so much and loves falling over.
- **Amoeba Walk:** Link a group (six to ten people) together with slings and carabiners, and form them into a circle. They must then move as an entity, either around an obstacle course, or in a race with another group. With a larger group one person can be on top of the group (on someone's shoulders), the nucleus of the amoeba, to direct the group.

- **Pyramids:**

Challenge
the children to
build a pyramid with
either six or ten people depending
on the ages. Can be related to energy
pyramids, food chains,

- **Electric Fence:** Place a string across an area, the height of the average children. This becomes the top of an electric fence which they must get over without touching, as quickly as possible. Requires a lot of team work.

C.4.2 Reflective Games

"There is that side of learning that should belong to each of us alone. There is that side of learning that has no words. Out of these comes values."

(Baldi, 197:17)

- **Sensory Activities:** Children are very receptive to their senses and much less inhibited about using them. Although there are some specific activities which heighten sensory awareness (blind walk, know your tree) all of the senses can be used in any area.

- Close your eyes and count sounds. Are many human sounds?
- Describe the leaf shapes; smooth, sharp.. Crush them.. Smell..
- Walk in a close group (eyes shut) with one had on person in front's shoulders. This is good for small children.
- Cup your ears. Can you hear better? Block them for 30 seconds. See the difference?

- **Know Your Tree:** The sighted person picks a particular tree, disorients the blindfolded person and takes him to a tree. He feels the tree and explores its uniqueness. When he feels he knows the tree, he is lead back to the start and must find the tree again. This has a real air of exploration about it.

- **Blind Walks:** There are a variety of options available here, all of which require the person to sense the world differently.

- Set up a trail with a string and a blindfolded person leads themselves around.
- Similar trail but the person is also aided by a sighted child who points out specific things. A leaflet could also be used with this.
- A sighted person could lead a blindfolded person over a trail of his/her choice.

- **Rock Strategy:**

Age:	7+
Number:	10-15
Materials:	None
Time:	30 minutes

Invite the children to find a rock/stone which is very special to them. It must be big enough so that you won't lose it in your pocket, but small enough to be covered by your hand. It should look good sitting amongst a lot of other stones and also sitting alone in the bath. When everybody has a rock, come into a circle. Has the rock a smell? What shape is it? Are there many colours? Lick it. Does it change? Rub it with your foot. Compare with your friend. Pretend the rock is your whole world. Where would you live on it? How would you care for it? Take all the rocks in and then pass them out to the circle while the children have their eyes shut. They should identify 'their' rock. Some may become very attached to it.

- What's in a Name:

Age:	5+
Numbers:	15-20
Materials:	None
Time:	15-20 minutes

Take the children to an area they know has a well known name and challenge them to rename it according to all their senses. Divide the group into five senses and let them explore this. So rather than Liffey Stream, it becomes the clear, wet, gurgling, quenching, fresh stream.

- Make Your Own Nature Trail:

Age:	8+
Where:	Any open space
Numbers:	Up to 10 per leader
Equipment:	Ball of string, pencil, paper
Time:	30-60 minutes

An excellent activity to get people 'closer' to small things in nature. Each participant is given a length of string about 1 m long. They create their own nature trail of that length suitable for the very, very small. On the paper they mark down the parts of interest (these may be a few long blades of grass which become a forest, or a large rock which becomes a mountain) and then take the group along their nature trail when they are finished.

There is great scope for imagination in this activity, and children especially become very absorbed in something they seldom have a 'close' look at.

- Recipe for a forest:

Age:	8+
Number:	Up to 10
Materials:	Pen and paper
Time:	20-30 minutes

The children are each 'given' an area of land on which to create their own forest.

Imagination is the key, although children should be encouraged to produce a balanced environment, i.e. don't forget rain, sun, decomposers.... They can document this by drawing or describing it on paper.

Occasionally you will recognise a special moment when children need a quiet time. You can take them to a special spot you have and given them time to explore it on their own, or take them on a walk and spread them out so that they don't have contact with other children (best with a small group), or take them for a night walk to hear the sounds, sights and smells of that time of day. Children will often be first out after a rain too.

C.4.3 Inquiring Games

Natural environments have many exciting areas to explore. You may plan to explore a particular habitat; under rocks, ponds, trees, or just let the children lead themselves and be prepared to assist when they need you. It may be handy to keep various things in your pack to call on: binoculars, magnifying glass, icecream containers (for streams and ponds), sheet (lay under a tree or bush and shake, to study insects), glass or plastic bottles for insects.

The following are some more planned activities suitable for any natural environment from lawns to dune areas.

-Temporary Guided Walk:

Age:	7+
Number:	20
Materials:	cards and string
Time:	unlimited

Choose a track with a variety of environments and place cards (approx. 12 x 20 cm) along the track. The children walk alone or in pairs at least 20 steps apart. Listen for three

human-made sounds. Stop. How many shades of green do you see? What do you think lives in this hole? Run to the next card. Smell everything till the next card.....

The children could then make their own and take you on it.

- **Cemetery Walk:** These are full of interesting stories about the past. The following quiz was used successfully with a large group (40) of 8-12 year olds in a small cemetery dating back to the original European settlers. It was followed up with a group discussion. The younger children did grave rubbings. Care must be taken to ensure the children respect the gravestones and do not damage them.

Cemetery Quiz:

Take your time and explore the cemetery. Look for some of these things.

- The oldest part of the cemetery. Can you find the earliest grave?
- Some graves have quotes on them. Which one do you like?
- How old was the oldest person buried here? (Hint - over 90 years old.)
- A gravestone with a photo on top.
- What are the different materials used?
- An unusual name.
- An interesting headstone.
- There are five graves which have something different from the rest. Where are they? Why are they there, do you think?

A cemetery can tell many tales. What have you learnt about Naseby's past?

- Duplication: (Kim's game)

Age:	5+
Number:	Up to 20
Materials:	Cloth to cover articles
Time:	15 minutes

Choose a number of natural objects: seeds, berries, cones, feathers, that can be collected without disturbing the environment adversely. Show them to the children for a short period of time (one or two minutes), then cover them. They then try and find these again. As you uncover the articles you can tell a story about each of them (e.g. the berry that you found is miro; pigeons love to eat them).

- Camouflage + Unnature Trail:	Age:	6-12
	Number:	18-25
	Materials:	Cardboard discs or articles of rubbish
	Time:	30 minutes

Two good activities which highlight the concept of camouflage. They can be followed up with discussion about camouflage in animals and the importance of colouration. For the first activity there are two groups. One group divides up between them a series of small cardboard discs (50 cent size). They should be of varying colours - green, brown, fawn, white and light blue. They are then camouflaged (not hidden, at least half of the discs should be showing at below eye level) in the study area. Group 2 then finds them. The groups swap over. The second activity takes place along a track. Various human objects are camouflaged along the side of the track (pencils, combs, bottle tops). The children will walk slowly along the track about 10 steps apart and silently note what they see. The group then returns and picks them up.

- Food Web:	Age:	6+
	Number:	10-25
	Materials:	ball of strong
	Time:	20 minutes

This explains the concept of food chains, food webs and the interrelatedness of communities. Start with asking children for a name of a plant. "What eats this plant?" The ball of string is passed on to the plant eater and so on until there is a food chain of children linked with the string. This is then built in to make a food web, the string being passed around. One of the plants dies or is removed and the plant tugs the string. Everything that feels the tug dies and when it dies it tugs also. Thus the effect on one part of the food web is felt throughout.

- Habitat Game:	Age:	8-12 years
	Number:	10-20
	Materials:	Toothpicks, lolly sticks, darning needles, pencil, paper.
	Time:	30 minutes

This is fun science learning game which explains the concept of habitat - an animal/plant's home.

Before the activity starts, the toothpick, lolly stick and the darning needles are dispersed throughout the study area - each thing representing an individual animal. They are distributed each to one habitat, i.e. toothpicks are scattered all over the ground, lolly sticks are clumped under trees and darning needles (have only a few) are placed in pairs beside one specific plant.

The study is outlined for the children. They are told that they will be biologists and the first thing they must do is map their study area. This should be quite basic - with a couple of trees or bushes and some open space. The 'three animals' are then held up and named. (This can be as imaginative as possible.) Tell the group that all animals are found in the study area and they must mark them on their map. The group decides on a symbol for each 'animal'.

The study area - collecting all the animals they find and carefully marking them on their map. They will soon find that one 'animal' will be found in a certain spot.

When the group re-assembles a joint map is made showing where the animals are found. The concept of habitat can then be introduced, i.e. the habitat of a toothpick is in leaf litter, the habitat of darning needles is under dandelions.

The activity has obvious scope for more detail and distribution; i.e. random, clumped, pairs can be discussed; camouflage, habitat (pull the dandelions out and the darning needles have nowhere to live!).

- Sound Off:

Age:	8-12
Number:	1-30
Materials:	Supermarket bags, one each. Animal cards.
Time:	30 minutes

An activity which explains predator/prey relationships in simple terms. It can be used to demonstrate possible effects of introduced mammals on relatively predatorless populations.

Each child is given a paper bag to put over her head to act as a blindfold. They are then disoriented from each other and given a card with the name of an animal and its sound, e.g. Kea (Kee-ah). All must remain quiet until the words 'Sound Off' when they must make their sound in order to find their mate (there are two of each card). When they find their mate (still wearing the bag) they move to an area away from the others.

The next round two predators are introduced. They too cannot see, but make no noise. They must try and catch the prey by listening. When a prey is caught, she must take her bag off and move to the side. Her mate must also die.

The objective is to try and find your mate without being caught by a predator, and once together can remain so. It is fun to be caught though, because you have a chance to see how crazy everybody looks.

It is important on all programmes, where possible to bring in the human aspect. Note the impact that you make tramping through the marsh. After you have had lunch, sort out the rubbish. What is this made of? Can we recycle it? Tell the children that as far as the land belongs to anybody, it belongs to them also and they must be caretakers of it. "How should we care for the land?" "How does it take care of us?"

3.2 Excerpt from Edginton (1983)

A. INTERPRETATIVE DISPLAYS

"To the young mind everything is individual, stands by itself..... later remote things cohere and flower out from one stem."

(Emerson)

Emerson summarizes the children's learning process that psychologists have studied in depth - that is the ability of young children to comprehend facts and information only in separate 'boxes', which with maturity are drawn together to form a more understandable whole as the child begins to grapple more successfully with abstractions. It therefore becomes important that interpretation, and more specifically display work aimed at children, should not be just a simplification of that aimed at adults, but must use a completely different approach.

Displays for children is a little researched subject that is suppressed somewhat by traditional ideas of adult displays. Of course, ideally, all nature awareness and outdoor education should be experienced outdoors. However, not all children have the opportunity to experience nature in this way because of lack of adult supervision or interest.

Displays alone, without the outdoor experience, are of only minor value to children. However, displays directed totally towards children have the potential to greatly enrich the outdoor experience. As an interpretative media they have extensive advantages.

A.1 Advantages

- Displays can provide a valuable opportunity for advanced briefing material for the outdoor experience for school groups and family groups. Research by Martin and Wheeler (1975) has indicated that much of the value of field studies would be lost unless there is preparation before hand and follow-up afterwards.

- Wet days and darkness can bring all outdoor recreation and learning experiences to a halt and often confines family and school groups indoors. Displays based on child and parent/teacher participation provide a protected environment in which to introduce the child to the national park and to nature, (Hanna, 1972).
- Children who do not have the opportunity, due to lack of willing adult supervision or physical or mental handicaps, to experience some aspects of the natural environment that the park has to offer, may do so through displays.
- Displays are continuously available, no interpreters are necessary and children have the freedom to move at their own pace to their own interests. Sometimes no ranger is available when parties arrive unannounced. Some of the needs of the children could then be met by displays.
- Displays provide an opportunity for original objects to be exhibited and valuable artifacts to be publicly viewed, lending reality, fascination and 'presence' to interpretation (Hanna, 1972).
- Displays are particularly good at suggesting rather than telling. They can stimulate interest by inference, not explaining too much. Other media (audio-visuals, publications, personal services) can do most of the telling (Hanna, 1972).

A.2 Disadvantages

- Displays are expensive to produce (Jacobson, 1978).
- Displays, because of their fragile nature and because of the value of many exhibits, are frequently accompanied by 'please don't touch' signs, making them remote from children, especially the pre-eight year olds to whom touch is so important.
- Displays should be kept within their limitations. They cannot hope to compete with the 'natural world' outside the door and must not try to do anything but supplement a child's appreciation of it. They should not be used to explain park policy.
- There is a danger of an alienation from nature.
- The visitor using traditional exhibits is usually standing for long periods. "*The mind can absorb what the feet can endure.*" (Hanna, 1972) This need not be the case with a design for children with an emphasis on participation that may also involve sitting, crouching and climbing over things.
- With all contents of the exhibits available at once they may be competing for attention (as well as being complementary and mutually supporting). This can be overcome by adhering strictly to a principle of simplicity.

B. DISPLAY GUIDELINES

B.1 What is a Display?

Display is perhaps a misleading work when used in terms of children. It tends to conjure up the image of a passive learning experience with mounted photos and pictures, stuffed birds and wall posters. However, the concept of displays applied to children has to open a whole new realm of thinking and must dispel the 'adult' ideas of what a display is.

Martin and Wheeler (1975) express it as a concern with providing a learning situation rather than teaching. This is a theme also expounded by Tilden, who sees the best method of interpreting the environment is where the child is stimulated to want to find out more. This he describes as provocation - not instruction.

Displays or 'Exhibits' are defined by Jacobson (1978) as relatively permanent, self-contained presentations. Ross (1978) describes them as *"using arts as a way of visualising and animating a parks story"*. This is a much broader definition than that of Sharpe (1976) *"a device which publicly displays text, photographs and objects with the purpose to educate and enhance visitor enjoyment and appreciation of a natural or cultural entity"*. Jacobson (1978) extends this list to include models, dioramas, transparencies, art work, automated exhibits, talks and slide programmes, collections of specimens and live exhibits. Jacobson goes on to list key features of display:

- may be used in different situations;
- may be viewed at the visitor's leisure;
- are self-explanatory and reduce the need for personal service;
- provide an introduction and background information to significant features of the park.

Displays are expensive, visitors are accustomed to the high quality presentation in some museums, so a specialist team is needed for their production, such as those available through the Visual Production Unit now established in Nelson.

All interior displays need to be arranged according to an established floor plan. This is necessary in order to establish a visitor flow pattern and to develop the interpretative themes in an orderly progression.

Such fundamental display outlines look at the practical aspects that need to be understood in designing displays for parks. Children, however, have more specific needs.

B.2 Displays for Children

Displays for children are an attempt to get children involved and aware of the impact of their own decisions and actions on the overall environment. For younger children this may be just by developing in them an affinity for natural things; and then introducing an awareness of environmental processes into all the subject matter considered. (Paul, 1972).

Gilbert (1971) points out that the value of displays and exhibits is often questioned by personnel of many natural resource management agencies. Are the results worth the time, money and effort? He believes, however, that display and exhibits do interest people and therefore contact is made. Of course, the quality, the impact and the image of these efforts must rest with each individual display or exhibit or organisation.

Gilbert points out the necessity to 'aim a specific message at a specific audience; factors to consider include age, education and background, interest and whether rural or urban'.

Having established that a child's learning process is fundamentally different from that of an adult, it follows that displays aimed at children should also be fundamentally different. However, many displays reflect what can be termed the 'average visitor' syndrome.

- The Average Visitor Syndrome

The opinion expressed by Ahern *et al* (1977) is that 'Visitor Centres' should:

"Aim displays at the level of secondary school children so that they can also be understood by younger children and adults. If they are aimed at younger children or adults, the other groups find them too basic or too advanced."

Displays are theoretically aimed at an average reading age of 13 (estimated to be the average reading age of New Zealanders). In aiming at this level, Ahern *et al* (1977) are correct in the above assumption that secondary school and adults are catered for, however, it is unlikely these will also be understood or appreciated by younger children.

Burns (1982) states *"there is no doubt that visitor facilities in New Zealand are in general designed for adults and often ignore the needs of children."* There is a hands-off approach, with flat surfaces, 'safe' pale colouring and lots of lettering. These displays are aimed at the mythical 'average visitor', and in trying to cater for too broad a range of ages and interests, often caters for none.

Fitting a presentation to the audience is particularly important for age groupings. This is explained by Wager (1976):

"Because people have different interests and backgrounds, interpretation needs to be tailored to the audience at hand. For example children of different ages have quite different patterns of behaviour and learning (Machlis and Field, 1974). Yet how many interpretative presentations even recognise that children are different from adults?"

- Adult/Child Interaction

The concept of separate displays for children does not mean a total segregation from the adult world. For practical reasons displays concerned with participation should be separated from the adult displays so that the children's noisy enthusiasm is not distracting to those wanting to read or study maps. However, ideally all children using the 'children's room' (for want of a better name) should be parent or teacher supervised. This is strongly advocated by Sharpe (1976) who stated:

The natural parent/child relationship is reinforced through interpretative media which permits parent and children to interact."

An adult companion is very important to lead, guide and share with the child. If the display is effective as a stimulus the child will be overflowing with questions (as is typical of under 12 year olds), that should be answered by the parent or teacher.

It is not practical, nor desirable because of the very nature of what a display is, to have constant staff supervision. There is the danger then that the children's area could turn into a free babysitting service or kindergarten.

- Visitors' Interests

A study was conducted in the United States by Washburn and Wager (1972) of four visitor centres to show what factors visitors found rewarding. Four main conclusions were reached, outlined below:

1. Complete stories and presentation that included cause and effect relationships were found to be more interesting to people than isolated facts. (A young child's learning process may not, however, be able to deal with complex cause and effect relationships.)
2. Violence and violent events are of greatest interest as subject matter, e.g. volcanic explosions. Fortunately, natural environments abound in violent stories that can be told in a tasteful way. The violent nature of survival could be stressed, for example, life in the ocean is so hazardous that for most organisms, millions of young must be hatched to ensure that a few will survive to maturity. It has also been noted by Tilden that young children in particular, have a delight in the superlative. They are interested in what is the biggest, smallest, most and highest. Tilden (1977) quotes the example of an heroic sized stature at one end of a room. Every child, he observed, touched this statue in passing it. He asked the interpreter/teacher why they do so; "*because it is so big. They would not have patted a statue merely life size.*" In a section devoted to wild fowl eggs, their attention was arrested and held by one collection of two dozen together, "it was the biggest lot" was the explanation.
3. Interest was far above average for dramatic/animated presentations. Movies, changing lighting and recorded sound. This is partly because they appealed to many more senses than just visual. Young children, particularly, because of their lack of inhibitions love personal examination by touch, smell and taste, as well as sight and sound.
4. In contrast, interest was below average for inert presentations of mounted photos and written labels. (Yet such flatwork exhibits are probably commonest of all. The contrast between dynamic and inert is also very close to the contrast between the media used for entertainment [usually rewarding] and those used for education [often uncomfortable]).

It can therefore be concluded that people prefer traditional entertainment media to traditional education media. This applies also to children. A child will be more receptive to learning about different plant habitats by doing a jigsaw puzzle to arrange the plants in their 'homes' than by reading about it or just looking at pictures. This is because more than one sense is involved. It is a well documented fact that a child will recall better, information and experiences learnt by methods incorporating more than one sense. Thus, displays incorporating use of some or all senses will be desirable for children.

B.3 Senses in Displays

As mentioned earlier, the value and effectiveness of utilising as many senses as possible in a learning experience is well recorded. Arnold (1976) states:

"It is undoubtedly true that children learn about their environment more effectively if their senses are brought to bear on a large variety of stimuli".

(Arnold, 1976)

He goes on to point out that introduction to nature through this stimulus is not a luxury, but a necessity and should be treated as such. This particularly applies to children because of their higher receptivity and lower inhibitions compared with adults, and the sense of wonder of youth.

Sharpe (1976) suggested that in interpretation it was important to employ many senses, but the most effective of these are sight and sound. This was reinforced by Gilbert (1971) who stated:

"All communications should be designed to create understanding. Investigators agree that learning and understanding are increased in proportion to the number of senses employed in the communications effort."

(Gilbert, 1971)

The learning process as determined by psychologists is:

- 83% dependent on sight
- 11% dependent on sound
- 3% dependent on smell
- 2% dependent on touch
- 1% dependent on taste

These are figures for adults. A child under 12 who has not fully developed its reading ability would depend more heavily on senses other than sight. It should also be noted that these figures do not allow for the benefits due to interactions of these senses. For, as stated by Gibert (1979):

"If a choice is possible, the visual aid that has movement and will employ the greatest number of the senses should be used."

(Gilbert, 1971)

And Mazey (1965) states:

"The reason national parks have been established for the protection of natural landscapes and the native flora and fauna, makes them the ideal place for studying a wide variety of subjects. When a child can learn about (for example), volcanic activity, by being on a volcano, smelling it, handling the lava, watching a seismograph, hear the movement of lava on tape, study the sequence of ash showers, this in my view is the real way to study. Education is not just learning from books; it must, if carried out properly, be a total involvement of the pupil with the subject."

(Mazey, 1965)

In the United States the forest service have an interpretative programme for children adopting touch and feel techniques for classroom study for the six to 12 year old age group. They have adopted a symbol - 'Woodsey Owl'.

"Discovering the way nature looks, sounds and feels is how Woodsey thinks kids can enjoy environmental studies. Later, they can tackle environmental projects and feel accomplished by creating a better place to live. Students and young people begin environmental awareness by actively using their senses, learning what is around them and that they themselves are part of it."

(USA Forest Service, 1979)

Some ways in which these ideas have been effectively related to displays include:

1. Smell bags, in which a child smells a bag to identify the contents. Examples of contents include: lemonwood, decaying soil, volcanic rock, stinkwood.
2. Examples of different tree trunks: that on which the bark can be felt. *"Feel the bark - which is the smoothest? Where would these trees grow?"* There should always be opportunities for children to experience texture. A permanent display (with paper and crayons provided) on which rubbings can be made to visually illustrate the texture that a child can feel. Examples include: clay, sand, bark, rocks, fur and feathers.
3. In Wanganui Museum, some artifacts are taken out of the cases for handling. *"How heavy is a greenstone mere or adze to use all day long?"*
4. Sound box - a small, separate, dark, cupboard-sized room in which tapes of different bird calls are played. If the room is darkened there is less chance of distraction. All concentration is on the sound.

B.4 Participation in Displays

*"I hear and forget,
I see and remember,
I do and understand."*

(Chinese Proverb)

Research has demonstrated a number of factors that contribute to visitor interest and interpretation. One of the most important is to provide for visitor participation and involvement. Participation, an element notably lacking from many displays, is becoming a widely accepted, but infrequently adopted learning technique. Mazey (1969) in his report on a visit to the national parks in the United States of America stated:

"The very best type of interpretative displays were those that permitted a degree of visitor participation in displays that could be handled or were live displays. Outstanding exhibits were seen at the Seattle Pacific Science Centre where visitor participation was taken to a high degree with excellent results. Some of the smaller children's museums, both within and outside the parks system had excellent displays designed to make the children look, touch and think."

(Mazey, 1969)

Sharpe (1976) stated 'The Kid Power' of participation should be further harnessed as participation increases the retention of information received. He quotes an example of the great interest participating displays can provoke.

"At the Ohanepecosh Visitor Centre in Mount Rainier National Park a recording quizboard was installed that simply presented four written multiple choice questions and permitted each to be answered by pushing electric buttons, opposite the answers selected. When a correct answer button was punched, a green panel, reading 'right answer' lit up. In addition, the quizboard made a rather satisfying clicking sound as relays snapped and hidden counters registered people's answers. Although the other exhibits in the visitor centre were extremely well done, the quizboard was the only exhibit that permitted participation and manipulation. Within seconds after it was installed it became for children, the most popular exhibit in the centre. Psychologists have found that getting the right answer to a question is rewarding."

(Deterline, 1962)

This is the basis for teaching machines and programmed instruction. As one application of this, Wager (1972), developed a programmed nature trail in which visitors were asked a question at the bottom of each sign and then were given the right answers on the next sign. Children remembered more from these questions and answer signs than from the visual signs.

B.5 Simplicity in Displays

There is a danger with any display that adopts sophisticated techniques to deliver its ideas that the media will become more important than the message.

Ahern *et al* (1987), were aware of this danger and warned that one must be careful that technique does not create more interest than the feature being interpreted. Wager (1976) gives a clear example of this in his experience watching children at the Chicago Museum of Science and Industry where most of the exhibits provide for visitor participation. *"The day I visited, school groups were running about almost randomly twisting knobs, pushing buttons, and yanking handles, but paying little attention to content."* Wager recommends

from this experience that for the best learning we must make rewards contingent on such learning, such as, the quizboard described earlier.

The value of simplicity of approach and material cannot be stressed enough. It is possible to achieve a high degree of child involvement in the displays without using sophisticated machinery. Simplicity is the key to a truly successful display, not only simplicity of equipment, but also ideas.

Soutar (1973) noted that *"the essence of good displays is simplicity"*. The following explains her experience:

"In Oakland Museum I was astounded at how a few items in a display could add up to a complete lesson in ecology - for instance two foxes standing rigid with concentration in the snow, a small hole and a line of footprints entering the hole were more than sufficient to show a lot about the life of a fox in winter. The displays in the museum include no labelling and almost no printed explanations beside each case. As a result, this led to wide discussion between visitors and with the very well informed staff attending."

(Soutar, 1973)

This point has been stressed by Gilbert (1971), Tilden (1977), and others as shown below:

"Do not try to satisfy your vanity by teaching a great many things - awaken people's curiosity. It is enough to open minds, do not overload them. Put there just a spark. If there is some good inflammable stuff, it will catch fire."

(Anon)

B.6 Mechanical Devices in Displays

Do not get the impression that I am condemning the use of mechanical devices in displays - far from it. One of the dependable verities of human behaviour is that people tend to persist in doing the things they find enjoyable and rewarding and judging by the huge popularity of computer games with children, mechanical devices are popular.

Graves (1972) protested the use of tape players, movies and exhibit systems designed for participation. Yet, such dynamic presentations tend to hold visitor interest and become especially important when person to person interpretation is not possible. Interpreters must dispell strong preconceptions about what children should know or find enjoyable.

Visitor centres in the United States have developed the audio-visual idea to a high degree of sophistication with a lot of success. Soutar (1973) was very impressed with the 12 screen, 25 projector audio-visual at Oakland Museum, (USA). Sharpe (1976) believes the full potential of television, tape recorders and radio have not been fully exploited yet. He described the system in some United States national parks where an interpreter will talk to visitors and determine their interest and level of knowledge and then select a suitable audio-visual for the group to watch on a television type screen. The same system can work for cassette tapes with different information emphasis (e.g. geology, wild life), different levels of understanding and even different languages.

Mazey (1968) stated that a live ranger talk is always superior to an audio-visual, which in turn, is better than a static display. This is because of the danger of audio-visuals becoming impersonal, Sharpe (1976). Mazey (1968) pointed out that short introduction to an audio-visual by a staff member makes the whole presentation a lot more personal.

Tilden (1977) has a code of six principles concerning mechanical devices:

1. No mechanical device is, other things being equal, as desirable as interpretation by direct contact with the person.
2. A good device is far better than no contact at all.
3. A good result by device is better than a poor performance by an individual.
4. A poor interpretation by mechanical means is worse than a poor interpretation by personal contact.
5. A poor interpretation by mechanical means is not necessarily better than none at all, it may be worse than none at all, for you may add the same insult to injury as when one imposes upon another person a time wasting telephone call.

6. No institution should instal any mechanical devices until it knows that such gadgets can be adequately, continually and quickly serviced. No matter how good they may be when they are working properly, they are a source of shame and chagrin as well as an imposition on the public, when they are allowed to be more than briefly inoperative.

In summary, Tilden noted gadgets do not supplant the personal contact; we accept them as valuable alternatives and supplements.

The use of audio-visuals in New Zealand is still in its infancy, The first professionally produced audio-visual to be used in New Zealand national parks was at Tongariro National Park in 1980. Its success has led to the production of a second audio-visual for the park and has set a high standard for future productions of this nature. Other parks to follow this trend include: Arthurs Pass, Bay of Islands and Waitangi National Reserves. The production of audio-visuals is a highly technical process and to be done properly should be left to the professionals such as, the Visual Production Unit in Nelson who have the expertise and the necessary equipment.

Audio-visuals should be regularly updated so as not to become stale and too repetitive to the regular visitor. Although children show obvious enjoyment of the present audio-visuals, a production specifically for children would have its place in future planning.

In New Zealand national parks and education in general, video tape machines have only just begun to be exploited.

B.7 Traditional Display Methods in New Zealand

Not all the traditional display ideas are 'stuffy' and unattractive to children.

- **Relief Models:** Sharpe (1976) points out that relief models that show the topography of an area are among the most popular exhibits in visitor centres. This is because they readily accommodate groups and therefore encourage people involvement and discussion.

The relief model at Tongariro National Park is of particular interest to children as by pushing buttons, lights light up to show the park highlights, and an interpretative message about the highlights also light with an interpretation. This display is placed at a good height for children.

- **Mechanical Display:** Volcano exploding models operated by a push button are features at Tongariro and Mount Egmont visitor centres. These are also very popular with children. The child participation is, however, limited to a push of a button and then watching lights. The comprehension they receive of the mechanics of a volcano may be limited.

The element of participation of the learning experience could be greatly enhanced if a child were to build a volcano out of blocks cut to form a model. In the construction the child will have to note the position and function of the magma chamber and vent in order to piece the block jig-saw together.

- **Dioramas:** Dioramas (three dimensional models and a painted background) although extremely expensive and difficult to construct are an effective display to dramatise a scene. These do not involve children physically, but do capture their imagination. Miniature dioramas with durable, movable models that the children can touch, move and create stories around, would bring the whole diorama idea alive for them. Life size dioramas can be used very effectively to depict early settlers' lives (gold miners, Maoris, gum diggers, whalers), particularly if the child can walk in and become a part of the scene. It is inevitable that children will be tempted to touch exhibits and to enable this, all items should be replaceable (durable imitations of originals).

- **Two Dimensional:** Many New Zealand parks have a small children's corner with a pin-up board for their art work, special publications, colouring books and sometimes a nature table. Westland National Park has a small static display for children.

It is not often that flat displays (illustrations text and photos) are dynamic enough to relate

to children. The exception to this is the Arthurs Pass Visitor Centre display designed by the artist John Herbison. These loud colours produce a bright warm atmosphere. Traditionally, display designs have opted for 'safe' pastels that will not date quickly and are quite unappealing to children.

- Tactile Displays: Burns (1982) points out the value of touching and feeling in present displays.

"If we are able to touch, to feel, to participate in and experience, that experience becomes personal. Mount Cook National Park Visitor Centre has achieved this well with their climbing display. At a very low level real climbing gear has been inset into a panel giving everyone a chance to touch it. Various forest service displays have historic logging equipment, chainsaws, cross-blades (always blunt for safety reasons) - another 'touch' display (e.g. Naseby and Hanmer State Forest Visitor Centres and Catlins Forest Park Visitor Center). This is also important to children and adults with sight disabilities.

(Burns, 1982)

B.8 Structure of a Display Presentation

In order to discuss the structure of a display presentation aimed at children, it is important to consider what is to be presented, i.e. subject matter.

- Subject Matter: Wager (1972) quotes such subject categories as violence, animals and ecological relationships to be predictably interesting. Washburn and Wager (1972) have emphasised the need to present a complete story with cause and effect relationships. Under 12 year olds are primarily concerned with concrete things and are acquiring knowledge of things at the fastest rate in their lives. The best method to present a subject to them is to follow a concrete theme rather than a concept.

Wager thus believed the pattern to presentation was often of more importance than the specific subject matter.

- **Pattern:** Some useful principles suggested by Boulanger and Smith (1973) for selecting and sequencing content are:

1. Proceed from the simple to the complex (as from the one celled to the many celled organism).
2. Proceed from the whole to the parts or vice versa (as from the ecological system to component processes or the reverse).
3. Present a chronological development (as in explaining the formation of geological structures).
4. Illustrate increasing breadth of application (as in showing the concept of balanced land usage first for the forest then gradually expanding it to include farms, suburbs, cities and an entire region). This may not be within the range of the child's learning process.
5. Progress from the familiar to the unfamiliar (since the child understands 'home' he or she can readily understand 'habitat'). This important idea has been expounded by Tilden and the NEED Programme (USA). *"Always try to show parallels between nature and the students' lives."*
6. Move from the seen to the unseen (from watching a kiwi hunting for food to describing the details of a kiwi's anatomy that allow it to find food 15 cm underground and the physical reasons for its habitat).
7. Simply let the visitor decide his own sequence of learning experiences, as is possible, for example, with the multifaceted display.

The United States of America N.E.E.D. programme describes the learning methods that should form the basis of display. This summary of the sequence of stages follows the sequence of a child's maturity in learning:

1. Try to get the children to become acquainted with the facts and parts of a situation;
2. organise facts and parts in sets;
3. how facts and parts interact and are interdependent;
4. how change and continuity exist everywhere (concept of dynamic system);
5. effect of adaptation and evolution.

Other relevant learning skills (suggested by Arnold, 1976), some beyond the level of a 12 year old, are listed here:

- observing, exploring and ordering
- developing basic concepts and logical thinking
- acquiring knowledge and skills
- appreciation patterns and relationships
- communication skills
- develop interests, attitudes and aesthetic awareness
- posing questions and devising experiments or investigations to answer them
- interpret findings critically.

- **Positive Theme:** Gilbert (1971) pointed out that it is better to have a positive than a negative theme (of do not's). Park themes of rubbish disposal, protection of plants by keeping to tracks and not picking flowers, can be presented in a positive way by pointing out the benefits of careful disposal and the value of retaining the natural cover. Children should be encouraged to draw their findings in notebooks rather than take them home.

Gilbert also stressed the need for a presentation to have an instant attraction to arrest attention. However, *"to be successful, the display must be more than just an oddity, there should be a story or lesson present in addition to attracting attention and entertaining the viewer"*.

Sharpe pointed out that displays must not get too technical, abstract or cluttered. This further stress the idea of simple and concrete themes.

B.9 Other Display Variables

- **Modular Set Up:** Sharpe and Gilbert (1971) stress that to maintain quality an exhibit should be changed regularly. By careful design, modules could be created that can be moved and re-organised to meet different needs as with the audio-visuals discussed earlier. Sharpe states the need for displays to be movable and changeable to accommodate different traffic flow patterns and different seasons. The content, design and arrangement should be flexible. The expense of the production of items is very limiting, however, and if you get onto a good thing, it is often wise to stick with it.

- **Colour:** Bright primary colours appeal to children, with specific forms (as opposed to vague forms). A display could incorporate colour as a theme and give children opportunities to experiment with colour. An example is a felt or magnetic board to which a child can attach pre-shaped items to create their own 'story' in bright colours. These pre-shaped items should be components of the park that, for the younger children, could get them acquainted with facts and parts of the park and learn to organise these into sets or orders. Cornell (1979) suggests:

"To get children to concentrate more deeply on any natural setting ask them how many different colours and shades of colours they can see in front of them without moving from where they are standing."

(Cornell, 1979)

- **Height:** For too long children have been the forgotten visitors. Many traditional displays are set at heights that make them an inaccessible mystery to young children. Displays developed for children must be set from 'crawl level' to cater even for pre-schoolers. Items should not be overpoweringly large, but at a size that does not threaten the child. Room to sit, on mats, or small chairs is also essential, as the nature of the displays should demand participation and creativity.

"Children like to get into or make small places. Small corners and shelters are scaled to their size. In them the children feel in control and can allow imagination to fly."

(Cornell, 1979)

A hollowed out tree stump in a corner of a room would provide an excellent play environment. In it they could discover other natural objects.

- **Living Things:** If a child can inspect living things at close quarters it can add fascination and decrease any risk displays may have of becoming isolated from nature. Examples of this include: ferns at all stages of development, aquarium, lizards. The main requirement is that these are naturally maintained with minimum input.

- **Lighting:** Lighting must be considered when displaying items. Lighting can be effectively used to:

- create a mood
- draw attention
- direct people
- create a framework for something to exist in.

Care must be taken that direct sunlight and reflections off glass do not fade displays.

- **Display Language:** Soutar has earlier pointed out the value of simplicity in language and the effectiveness of no label displays or minimum explanations. In displays for children this is particularly important as children will tire quickly of reading, and tend to associate it with an educative rather than entertaining media. It is also good to provide a situation for young students where reading skills are not the primary determinant of student status. (Paul, 1972)

Most visitors find listening easier than reading and recorded sound has been associated with high visitor interest in several studies (Mahaffey, 1969; Washburne and Wager, 1972).

With recorded sound, as with a real live interpreter, visitors can listen to information without looking away from main attractions (Erskine, 1964).

Rather detailed information can often be presented without visitor fatigue. If desirable, sound effects and dialogue can be used to provide realism or drama. In a museum setting, Shiner and Shafer (1975) found the average time visitors looked at or listened to various

exhibits to be from 15% to 64% of the time required to read or listen to the complete message.

When reading materials are used they must be easily readable, short sentences, and little words. Letters must be large and easily seen, with the type of typeface, colour contrast and harmony being important here. Interpretation language must be within the vocabulary and experience of visitors and should draw upon situations and experiences well known to the visitor (Sharpe, 1976). Word usage is important.

Language is simply a signal system using symbols that have agreed-upon meanings among a specific group of people. Words are symbols, and full meanings really grow out of people's experiences. For example, do you recall specific places and events when reading the words 'the sudden tug of a fish taking the bait', or 'skipping rocks across the smooth water', or 'the trusting grip of a child's hand'? The memories triggered by words can provide thousands of times as much information as the words themselves. The most powerful words are those that tap the most widespread sets of similar memories and associations among your audience (Wager, 1976).

Pamphlets and brochures, in a style of writing, suitable to children can be created, describing natural or cultural features in story form and including pictures which can be coloured. This is described by Sharpe (1976) as an excellent way to orient children to natural resources. The children's room could provide a facility for children to colour in pictures. Sharpe also suggested a question and answer series to reinforce the parent/child relationship and may be a successful method for orientation to both the displays and the park.

3.3 Excerpt from Somerville

Preamble

This discusses an example of a programme for an interpretive field trip to a small area of native New Zealand bush. The programme has been designed for leaders whose group is aged between nine and 12 years. Its design is such that modifications may be made to accommodate the needs of each different group.

Size of the overall party is suggested at no more than 20 youngsters. There should be one adult to every five youngsters. It is important that all adults are involved in both the reconnaissance trip and on-site activities. Adults involved could be parents, or interested young adults such as students at the various tertiary institutions.

The programme has been divided into three parts:

- A. Pre-trip activities
- B. On-site activities
- C. Follow-up activities

It is so designed that a minimum of 'paper work' is done on the field. But pre-trip activities and follow-up activities involve small projects.

An area of bush is far more than merely a bunch of trees, a fact people too often ignore. It is an active community involving plants, animals, insects and birds whose interactions are important for their survival. The idea underlying this programme is to develop an awareness among children, that the 'bush is a living and interacting community'.

A. PRE-TRIP ACTIVITIES

Pre-trip activities are as important as the on-site experience. It allows the group an opportunity to come to an understanding of the purpose of the trip. It provides some

background knowledge of the area, and enables the group to understand requirements. These activities also help in stimulating interest and anticipation of the trip.

Activities can be taken at any stage prior to the trip. However, it would be advantageous if the leader has already made his own reconnaissance trip. Such a trip should not be a fleeting one. Take time over it, to explore and experience a feeling for the area. What opportunities does it offer the group?

- Discuss the Trip to the Area with the Group

This may be combined with slides of the area or an appropriate film featuring birds, insects, plants and any interesting features concerned with the area. By providing books related to the area and encouraging general use of them by the group there is opportunity to be familiar with the area's background.

- Plan the Trip

What is the mode of travel going to be? Private vehicle, bus. Is it overnight? If so, a letter asking permission will be required. What is going to be required, equipment, food.

The group can be divided up into smaller groups, each with some responsibility, e.g. accommodation (tents, etc.), food, clothes, lists, other equipment.

- Japanese Haiku

This is a type of poetry which is a simple, effective way of expressing feelings. At some time prior to the trip explain its workings to the group. Have them write some of their own. A prior understanding means little explanation is required when it is used on-site.

Japanese Haiku is -

1st line five syllables
2nd line seven syllables
3rd line five syllables

e.g. The cumulus sky
is a fluffy cotton ball
in the autumn sky

On the mornings fine
the sun climbs up over hills
shining warmly down

- The Night

Incorporated into the programme is a night outing. Darkness hides many interesting things. However, to gain the most from the experience, some prior investigations into nature's night life are recommended.

Discuss the night time noises with the group. Some of the leader's time spent in taping these sounds for the group to work with is an idea. An understanding of what it is that makes the noises is fairly important. They are often eerie and less friendly sounding than the sounds of the day. Knowing what makes them helps dispel the fears of darkness which exist among many youngsters.

- Sharpening Senses

Senses are a part of discovery. The use of all senses is encouraged throughout the programme. Practise runs, introducing the group to a greater use of their senses, is a valuable pre-trip activity.

This type of activity is one which may be carried out over a long period of time if desired. Bringing it up for only short periods at a time. It is best done in groups of five to six children. Each time the group meets, one person brings along an object that has been located using a sense. Example: a child is asked to bring something scented to the group and arrives with a large red rose. The group is to experience it through all their senses. Pass it around the group. Use the senses of:

- Smell - what does it smell like, what does it make them think of? Each person is to describe it in one or two words.
- Touch - run fingers over it, rub on arm, brush face against it. Again a one or two word description.
- Seeing - encourage an imaginative description.... something beyond "a red rose". Look at things from different angles. Look from the ground; look down, hold it in different lights.
- Feeling - what sort of feelings does an individual experience when thinking of roses?

- Taste - what does it taste like? Taste is multi-sensory and can be affected by smell, texture and colour.
- Hearing - what noises are associated with roses?

Such exercises are open to plenty of fun and imagination and no answer can be called wrong. Van Matre made some comments concerning the senses which are worth mentioning here:

"...when a sound is heard do not label it. Instead enjoy it, and if you do need to record the sound; record not its origin 'rain', but perhaps 'plink, plink' of rain on a corrugated iron roof."

(Van Matre,1974:22-23)

- Plant Needs

There is value in an introduction towards an understanding of the three basic plant needs - sun, soil and water. This can be achieved through carrying out three simple experiments:

- The Sun and Plants - Using some plants which have been grown by the group (the actual growing can provide interest) divide them into two lots. Keep half on a sunny window sill and the other half in a dark cupboard. Watch them to see what happens. What does happen? Why? How do plants use sun; how do they catch it?
- Plants and Water - Do plants require water to grow? Using healthy plants, divide the number into two parts. Continue caring for half, but fail to water the other half. What happens?
- Plants and Soil - Can plants grow without soil? Plant some seeds (preferably fast growing, e.g. radishes). Plant half on some moist cotton-wool and the other half in soil. Put them all in a good light and keep watered. What happens to the plants? Why?

Make sure all children are involved. Get each one to care for one or two plants.

B. ON-SITE ACTIVITIES

The order in which these following activities occur does not necessitate the order in which they be carried out in the field. However, there is some benefit in doing so.

The campsite, in the old Okuiti school grounds, is situated about three-quarters to one mile from the Reserve, a distance possible to cover on foot if wished. If the group were to walk this distance there is the opportunity for them to have a look about and grow more accustomed to their surroundings. Before launching into activities when the group arrives at the reserve, allow an opportunity for them to have a brief look around.

- A Discovery Walk

- * **Objective** - a general introduction to the outing and to encourage the group to be observant.
- * **General Comments** - ask plenty of questions to start them off in the right direction. As their interest increases you should find that it is them asking the questions. The answers can be worked out in a group effort.

As early as possible in the walk, when an appropriate example is found, introduce the idea of the bush as a living community.

Analogies can often be used to help a group relate to a new set of thoughts or experiences. This is achieved by likening them to something that is familiar to their daily lives. A city is seen as a parallel community with which to compare the bush community. The group can build up the picture of the city and look for comparisons in the bush. Examples of the city:

- many people living in a small area, in different houses, high ones and small ones, competition for space.
- rubbish men collect rubbish and help keep city clean.
- police keep law and order, catch criminals.
- gardeners supply our food, keep the gardens going.
- our needs are water, food, light, shelter.

Parallels of the above possibly found in the bush could include:

- all plants and animals in the bush need to live; they choose different places; on the ground, high up. They need light; vines compete for light by climbing up other plants to get it.
- some insects, fungi and bacteria act as 'rubbish men', composting the bush wastes, such as dead leaves and branches.
- insect eating birds act as 'policemen' eating caterpillars which feed on leaves.
- berry eating insects act as gardeners spreading the seed and worms turn the soil over and dig it.

There are many more parallel examples than mentioned. There may be finds of insects, animals, birds, plants and many other things of interest in the course of the activity.

Activity - a good opportunity for this activity is when walking up the 'Paper Road' which runs up the edge of the reserve (see map). This should be an informal 'hunt' where the group seeks out things of particular interest. Encourage the group to:

- look up
- sniff the air
- stop and listen
- touch things, look under things
- stop, crouch down and scratch in the soil

When something of interest is found, the finder may describe it to the group, commenting on its feel, smell, look and other characteristics. Encourage the rest of the group to experience the find and come to their own understanding of it.

An example: someone finds a Kowhai seed (a hard little yellow seed). What does it look like? Where was it? What tree has it come from? Look up; if the tree is close by, the seed pods may be visible. If the tree is not known it is something that can be a further discovery exercise in follow-up activities.

How did the seed get there? Did it fall; did birds carry it; did water wash it here; was it carried by the wind? Thus bring into discussion the various means of seed dispersal. What happens to the seed? A hunt in the undergrowth may locate seedlings. A picture of the tree's life cycle and influencing factors can be built up.

A similar idea may be developed around other finds. However, some 'subjects' such as a coloured pebble may be appreciated for beauty's sake only.

- Experiencing Sounds

- * **Objective** - to observe only one sense. To sense the living world through sound.
- * **General Comments** - it is sometimes easier to sit with one's eyes closed when listening to sounds. Then concentration is all on one thing. There are many sounds that are continual in people's lives which they become oblivious to. So that these sounds are heard as well as strange ones, encourage everyone to block their ears with their fingers for a short time, before starting to listen.
- * **Activity** - the open area at the top of the road, before entering into the bush, offers an ideal spot to sit and listen. Chances are that a sit-down would probably be quite welcome.

For about two minutes listen to the sounds which are going on around. These can be recorded on a small pad. Describe the actual sound rather than naming the origin of the sound, e.g. sshh of the wind in the trees, brrrrmmm of a truck. After the listening time is up, discuss the different sounds everyone heard. What sort of feelings people experienced from the sounds they heard. A brief stop once inside the bush is also a good idea, allowing the group to listen for new sounds of variations in what they have already heard.

- Bush Stratification

- * **Objective** - to understand the structure of the bush creates its own climate within.
- * **General Comments** - this is an exercise that does not involve a lot of activity. It is more oriented to looking at and for examples of stratification and its role in the bush. The stratification of a piece of bush may be compared with the design of a house.
 - the roof of the house is the equivalent of the canopy trees in the bush,
 - the chimneys represent the climbers which stretch throughout the different parts of the bush,

- the supporting walls of a house are similar to the sub-canopy in the bush which offers protection to other plants,
 - the doors, windows and larger furnishings represent the many varied ferns, young trees and shrubs which all occur in the 'shrub layer',
 - the floor's carpeting and mats equal the forest floor with its covering of mosses, lichens, small ferns and seedlings.
- * **Activity** - before entering the bush, bring to the group's attention characteristics of the day's weather such as the amount of wind, the temperature, how heavily it is raining (what is noticed obviously depends on weather at the time). Once inside the bush what differences do they notice; is there less wind, is it cooler, etc. What is the cause of the change? Discuss the various possibilities and introduce the idea of bush stratification. Move along the track discussing the role of each layer, encouraging the youngsters to find the examples appropriate to each layer. Other questions which one might ask could be, how do plants on the forest floor survive with less sunlight; has the leaf size anything to do with it; what would happen to some seedlings without protection of larger trees? The whole idea of stratification is something that may not be readily understood. It may need to be reintroduced on further trips. Name a couple of easily identified trees in each layer so the group have some connections with the idea and the bush.

- Exploring a Rotting Log

- * **Objective** - to achieve an idea of how nature recycles its wastes.
- * **General Comments** - a suitable rotten log(s) should have been located in the course of the reconnaissance trip. It may be necessary to go into the bush from the actual track to select a suitable one. Remember to leave the log right way up after investigating it.

Some insects you may find are huhu grubs, slaters, centipedes and worms. Huhu grubs are the larval form of a large beetle, the huhu beetle, which is quite common during the summer months. The female beetle lays her eggs in dead or dying trees, in cracks or under the bark. The fat white grubs which hatch from these eggs were popular fishing bait for the Maori people and were also a delicacy themselves, eaten raw or roasted over the fire.

- * **Activity** - inspect the log closely; what does it feel like, what can be seen? Encourage the group to feel the texture of the log and to search out resident creatures living on, in and under the log. The idea is to build up the idea of this log as the home for some of nature's creatures, the rubbish disposers. Observe the small plants too. What are they growing in? What might happen to them? (This latter question can relate to the competition for survival in life.)

Other questions appropriate to the exercise and which may help to stimulate investigation and further thought are:

- who lives here, how are they important to each other?
- what do they feed on?
- what is happening to the log, why?

- The Birds of the Bush

- * **Objective** - to understand a bird's role in the bush community.
- * **General Comments** - by now some birds will probably have been heard or seen and it is hoped that Sharpe's advice concerning the use of teachable moments was remembered in this instance. For this coming activity choose an area along the track where vegetation and cover is low; birds are more inquisitive when they feel they have the safety of surrounding cover. A reasonable degree of quietness and stillness is necessary so as not to disturb birds. This should be explained in discussion with the group.

Birds in nature have differing roles; depending on their diet. Honey eating birds, feed on plant nectar and are important for pollinating some flowers. Others which feed on berries aid in the seed dispersal. Insect eating birds aid in controlling insect populations including caterpillars. If the insect population were too high it could have damaging effects on the flora. Then there are the scavengers which help eat up decaying animal matter.

The following activity is to give the group a chance to see birds in their natural habitat before being involved in further activities.

- * **Activity** - using a squeak bottle, try to attract birds down within viewing range. Quiet discussions and observations may be indulged in. What are the birds doing? Why? Try to identify them with aid from the leader and field guide on NZ Birds (full reference in later section). Have each member of the group take particular interest in one bird they see or hear. This is so they may follow up its life history at a later date.

It may be worth keeping some questions in mind which the group could discuss. A question that could be asked after seeing a Bellbird and discussing its feeding habits could be, "What is the importance of honey-eaters?".

The sighting of a bird itself can stimulate the group's interest and questions start to come from them rather than the leader. A Fantail can lead towards an interesting discussion on the importance of insect eating birds to the bush community, and if visiting the area in spring, there is a good chance of hearing a Shining Cuckoo. This is an opportunity to learn about migratory birds and the interesting habit of this bird to 'pinch' other bird's nests. "Why don't they build their own nests?"

- A Scavenger Hunt

- * **Objective** - to reinforce the idea of the community roles in the bush.
- * **General Comments** - put a set time on this activity; have the group work in pairs and first two to return with everything, wins. To prevent damage to flora do not include anything that requires picking. This activity contains an example scavenger hunt. Provide groups with an insect jar.
- * **Activity** - find examples of the following items:
 - a fallen seed or flower
 - a small creature, alive
 - a ghost leaf
 - a sample of what a tree grows in

Gather the group around and discuss the finds, their locations and role in the community. The analogy of the bush and city may again be incorporated. Once the study is completed the captured creatures may be released back to the homes where they were found.

The length of this programme depends rather on the interest of the group and left to the discretion of the leader. Activities may have ceased before this point (to be carried into the following day or disregarded). However, wherever the group leaves off, it is important to tie up the study. The group may relate back to personal experiences for examples of various 'things' involved in the bush community. It is generally the reinforcement of an idea.

- * **Allowing Free Time** - while still at the Reserve, allow the group some free time, say 15 minutes. Explain to the group that the time belongs to them. How it is spent is up to each individual. However this time is used, one can consider it as of benefit to the individuals personally. Some may enjoy a game of tag, others lean over the bridge and

throw stones into the creek, others may prefer to stretch out on the earth and let the world go by. The group's leader could well give them some ideas to using the time, but don't organise them.

- A Night Stroll

- * **Objective** - to experience the knowledge that nature is still active at night.
- * **General Comments** - recap briefly what was discussed during the pre-trip activities concerning night. Before setting out make sure that the entire group are adequately clad. There is opportunity for seeing or hearing - moreporks, possums, hedgehogs, crickets, eels. The eels may be seen sometimes when a torch is shone into the water - they are attracted by the light.
- * **Activity** - the group may take a night stroll, listen for the noises heard on the tape in earlier activities, and try to find the sources of the noises. Consider the role of these creatures in the bush community (although some creatures mentioned are introduced they still have important effects on the community which cannot be ignored). Where do these animals live? What do they feed on? Questions can always develop interesting discussions and speculations. This activity can be pleasantly rounded off with a night-time story.

- Early Morning Rise

- * **Objective** - to experience the early part of the day and see the sun rise.
- * **General Comments** - many of the group have probably never experienced a sunrise before. As the group sets out encourage them to speak quietly to set the tone for the experience. While watching the sun rise silence on the part of the leader is probably the most appropriate form of interpretation. The youngsters may experience it in their own individual ways.
- * **Activity** - if the weather is reasonably warm, set out in bare feet, so that the dew on the ground may be felt underfoot. As the sun rises, feel the change in the temperature of the air. Remember it is this sun which is so important to the survival of all living communities. Notice how birds react to the sunlight. What is happening to the dew, look at it again later in the morning; what has happened to the dew? (The idea of evaporation can be demonstrated by holding a lid above a boiling jug, you then have boiling water-steam-water droplets on the lid, which fall again.)

Once back at the camp each person may express the feelings they have experienced pictorially, or in verse (e.g. Japanese Haiku).

- The Stream

- * **Objective** - to achieve a simple understanding of the life which exists in a fresh water stream.
- * **General Comments** - the following activity could well benefit from a brief discussion prior to the actual activity. Briefly discuss what things might be seen and where to look for them. I believe that this is something which should not be much more than a couple of minutes' duration. Its purpose is merely to stimulate thought in their activities. During the discussion, the importance of returning rocks right way up, should be expressed. The effect of not doing this could be likened to the group's reaction to having to live in their own home turned wrong way up.
- * **Activity** - encourage everyone to get involved with searching for life in the water. Look under rocks and small stones, into small pools and the faster running waters. Use the net to catch some of the 'critters' for a closer look. Keep them temporarily in a plastic container, with a little water. The use of a magnifying glass will make observations easier.

Observations can be further encouraged by asking the group questions, e.g. how do small 'critters' live in the stream's current, what prevents them from being swept away? How do they breathe? What do they feed on? What feeds on them? Do they grow any bigger, or change form?

By getting the group to stand in the stream they are able to appreciate the force of the current as water moves around their feet. Get them to try standing in water directly behind a rock. Does the flow feel any different? Also look then at where the 'critters' live and see if they can relate it to the water flow. Such as may-fly nymphs living beneath stones are protected from direct force of the current. Consider what benefits the current may have, such as carrying food.

By putting their faces under the water the youngsters are able to experience the difficulty of breathing through their noses or mouths. How do water creatures cope? Have a look at them to see how they manage. May-fly nymphs are good to look at; using a hand lens, the gills along the sides of their bodies are easily seen. They may provide a starting point to explaining how they get enough oxygen.

By discussing the food sources for the various creatures of the stream, a food chain or web may be used to portray the inter-relationships of the inhabitants. Life cycles may also be shown, using live examples of as many of the stages as is possible. By using this idea at the end of the activity all ideas may be tied together to provide a complete picture.

- Making Micro Trails¹

- * **Objective** - to encourage the group to see the little things which exist in nature, as well as observing the larger things.
- * **General Comments** - for this activity each member of the group is going to require three metres of string and some small pegs. For the pegs some small pieces of wire bent over at the top are suitable.
- * **Activity** - the idea is for each member of the group to create a micro trail the length of the string using the small pegs to mark sites of interest. This trail is one which must be negotiated on hands and knees. Points of interest may be a seed, fallen flower, an interesting leaf, a seedling, an insect or a fungi, to mention but a few. The group can show another person along their trail, acting as interpreter at each point along their own trail. A hand lens would be of great value in this exercise.

At the end of the field trip it is again important to draw the activities together, in the form of some broad generalisations or comments. This is so that everyone is exposed to a whole experience.

C. FOLLOW-UP ACTIVITIES

These activities offer the opportunity to further ideas developed in the field and they may merge into activities which are concerned with preparation for the next field trip.

1. From Von Matre, 1974:23-33.

- General Discussion

This is an opportunity to evaluate the benefits gained, from the experience. This can be done by encouraging the group to express their thoughts involving the trip and also things they would like to know a little more about. It is also a valuable opportunity to locate sources which will answer any questions which were unanswered during the trip.

- Watching Things Grow

Seeds which were collected while out in the field can be sown and watched as they grow. Native seeds sometimes take a long time to germinate and plenty of patience is required. The planting can be incorporated with investigations of what it will grow into; what its flowers are like; when does it flower; what inhabitants of the bush are dependant on it in part? Again building up a picture of something complete.

Some seeds which may be easily found in the Reserve are from Kowhai, Karamu, Tarata and Kohuhu trees. Kowhai seeds germinate more readily if subjected to hot water before planting, while it is ideal to mix both Tarata and Kohuhu seeds with sand before planting because of their stickiness. Karamu seeds are easily grown. A potting mix which may be used is made up of two parts of good loamy soil/two parts peat/one part riversand.

- Constructing a Mural

This could be a group effort or on a smaller scale, done in pairs. The idea is to build up the picture of the bush community using pictures, written expression and natural products such as bark rubbings, dried leaves and twigs collected while in the field. The end result should be something eye catching and representative of the observations made in the field.

- A Bird Study

Each person is to make a study of a bird which interested them most while in the field. They may investigate their life cycles, habitat and their role in the community. The end result should be a complete picture of one small creature which is part of a larger community. Pieces from these individual studies may be able to be incorporated into the mural.

- Aids to Field Activities

- * **A Squeak Bottle:** this is a small glass bottle and either a piece of cork or polyurethane. By rubbing the cork on the glass you can attract birds with the squeaking. One of these per group of five or six people is suggested.
- * **Hand Lens:** these are ideal for looking at small 'critters'. Two per group is probably adequate.
- * **Insect Bottles:** these make observation of small insects easier, and insects are less likely to be harmed. Allow about three to a group.
- * **A Small Pad and Pencil:** it is important that the pad or note book is small enough to be put in one's pocket, thus not impeding the use of one's hands.
- * **Some Plastic Bags:** these are always useful for collection of items of interest such as stones, seeds and feathers.
- * **A Small Knife:** these have numerous uses and are worth carrying. One per group would be adequate.
- * **Plastic Containers:** a small bucket or some ice-cream containers are excellent for holding water insects temporarily, for closer observations; two or three per group.
- * **A Butterfly Net:** this may be valuable in catching flying insects such as butterflies or dragonflies for a closer look.
- * **A Small Kitchen Sieve or a Small Net:** these can both be aids in catching the faster moving water creatures. A small net is easily made with some heavy fencing wire (number 8) and an old stocking. NB: I suggest that each group of five or six people have one of each item discussed above, unless otherwise indicated.

*** Useful Book References**

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Falla, Gibson, Turbott; A Field Guide to the Birds of New Zealand

Salmon, J T; New Zealand Flowers and Plants in Colour

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CONCLUDING COMMENTS

The importance of interpretation for enhancing people's enjoyment of experiences, and for promoting their environment awareness is made clear in this paper. What is also made clear is that to achieve the best results from interpretive efforts, children must not be overlooked. In fact, for the future, they must be considered a priority group for interpretation.

Children are inquisitive, imaginative and open-minded in learning situations. This presents a great opportunity for interpreters to convey their messages. However, it also provides a great challenge.

Children will not think or act like adults. Interpretation for children will depend more upon colours, sounds, games, touching, ideas and imagining than upon the more commonly used photographs, talks and text. Conveying your messages to children this way will be challenging, but it may also be fun.

APPENDIX ONE

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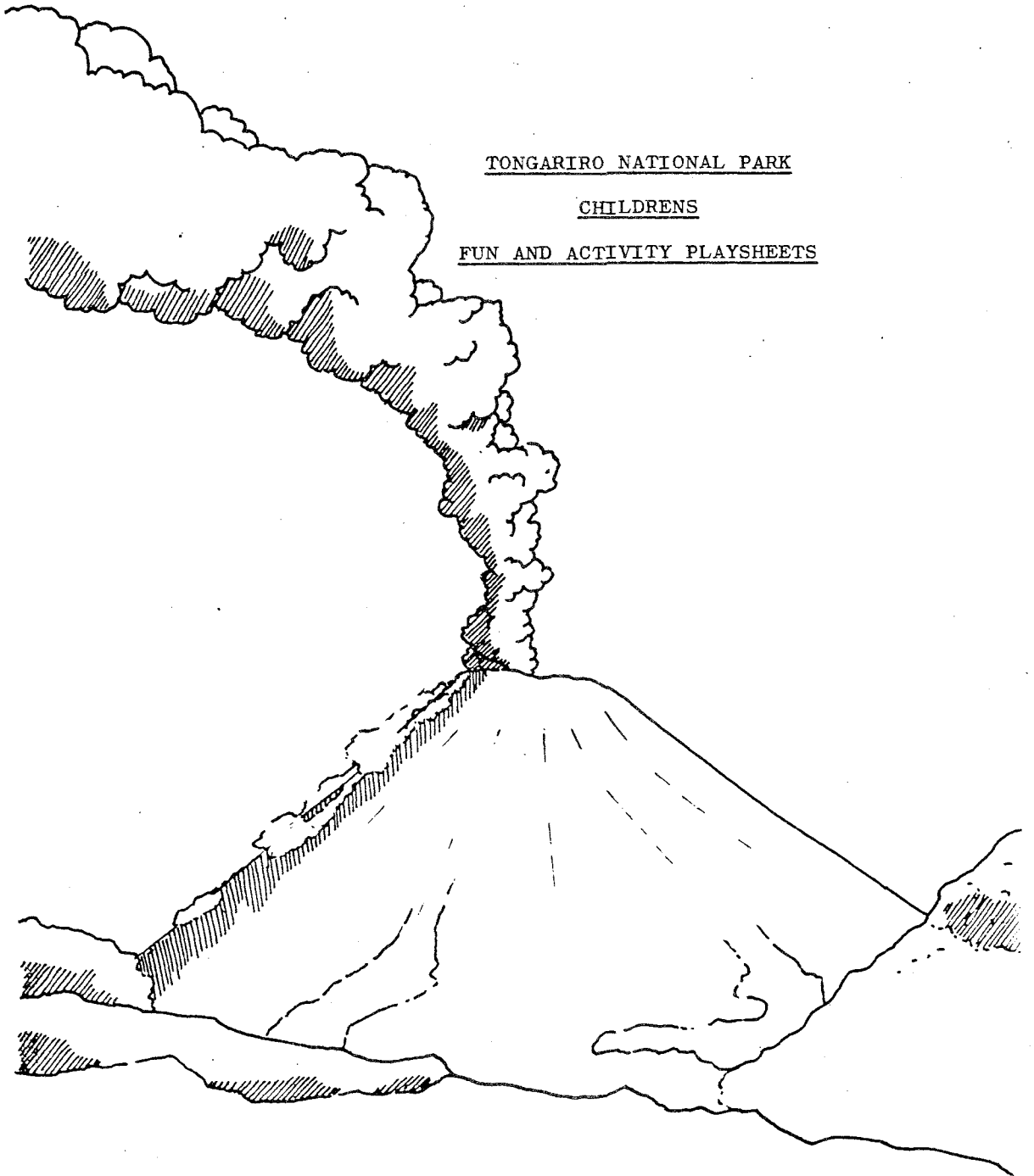
APPENDIX TWO

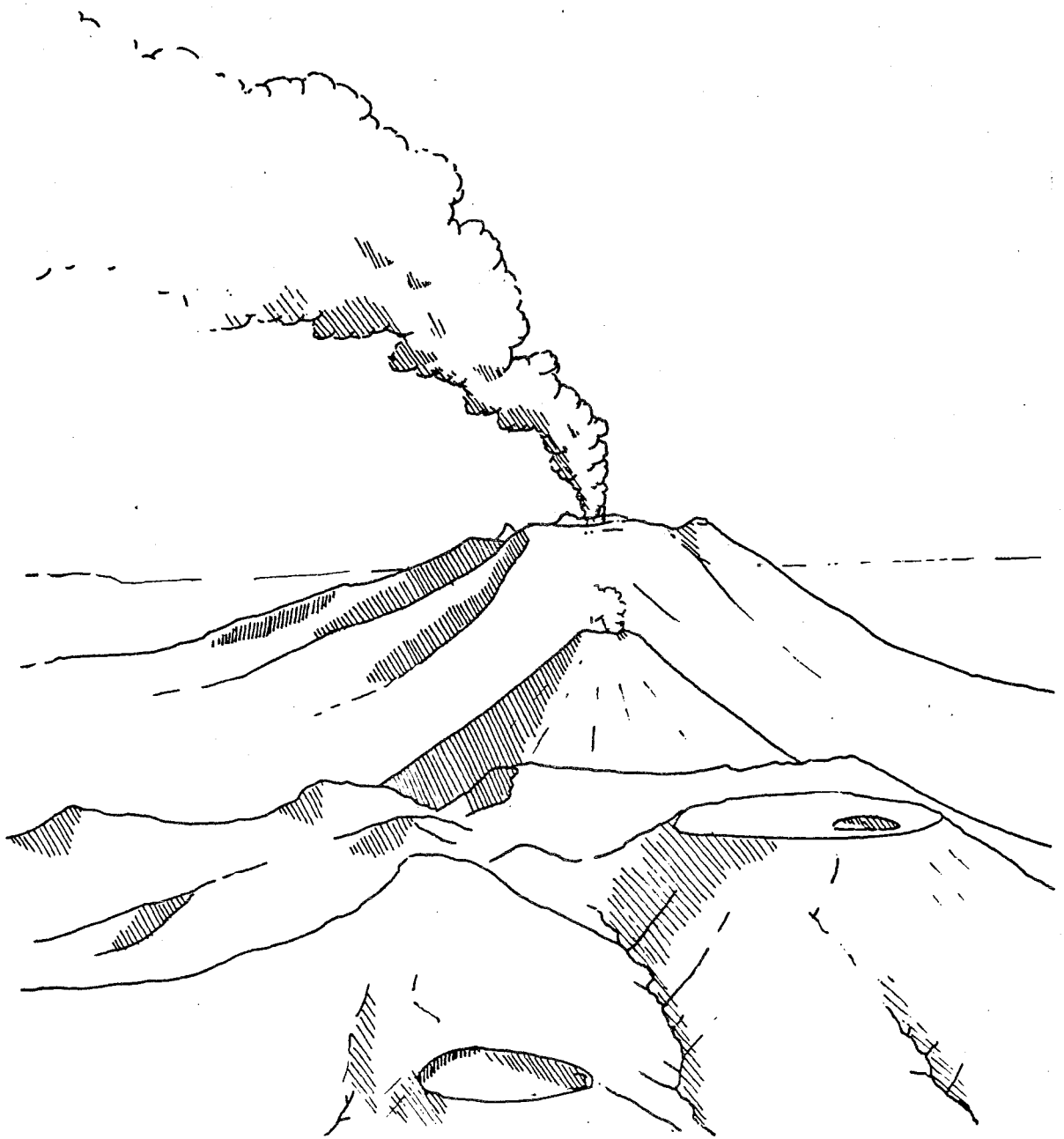
TONGARIRO NATIONAL PARK PLAYSHEET

TONGARIRO NATIONAL PARK

CHILDRENS

FUN AND ACTIVITY PLAYSHEETS

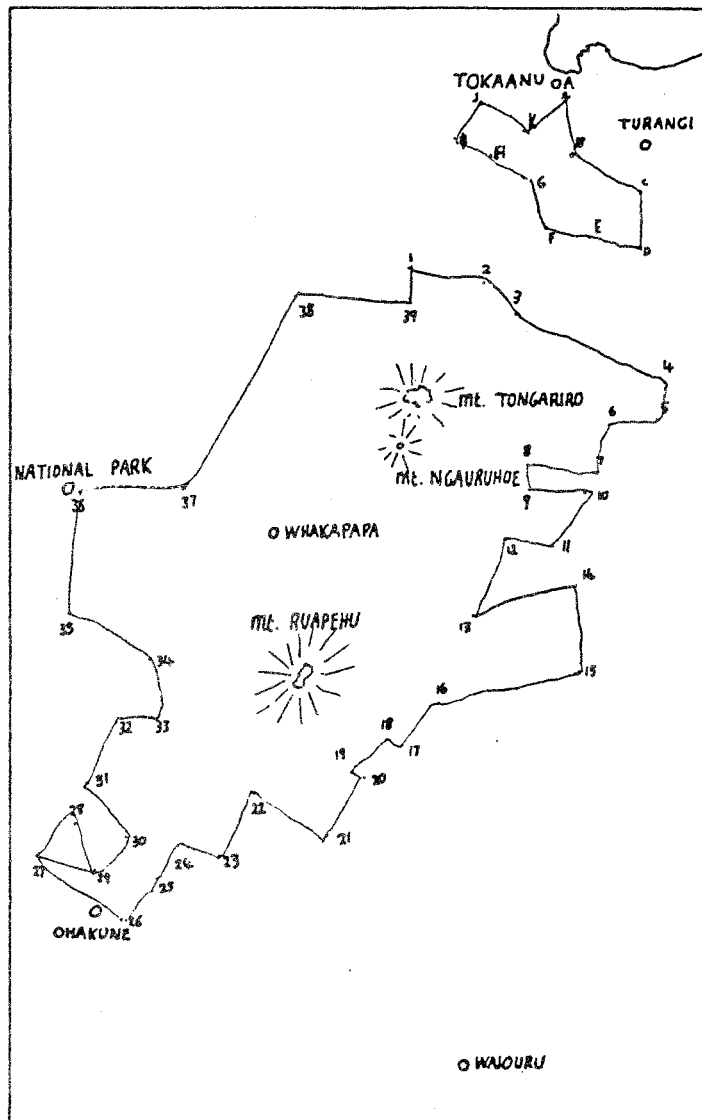




These Playsheets are about TONGARIRO NATIONAL PARK. A land of Volcanoes, Showfields, Skiing, Walking Tracks and interesting Plants and Animals.

Tongariro National Park

JOIN THE NUMBERS TO CREATE A MAP OF
TONGARIRO NATIONAL PARK



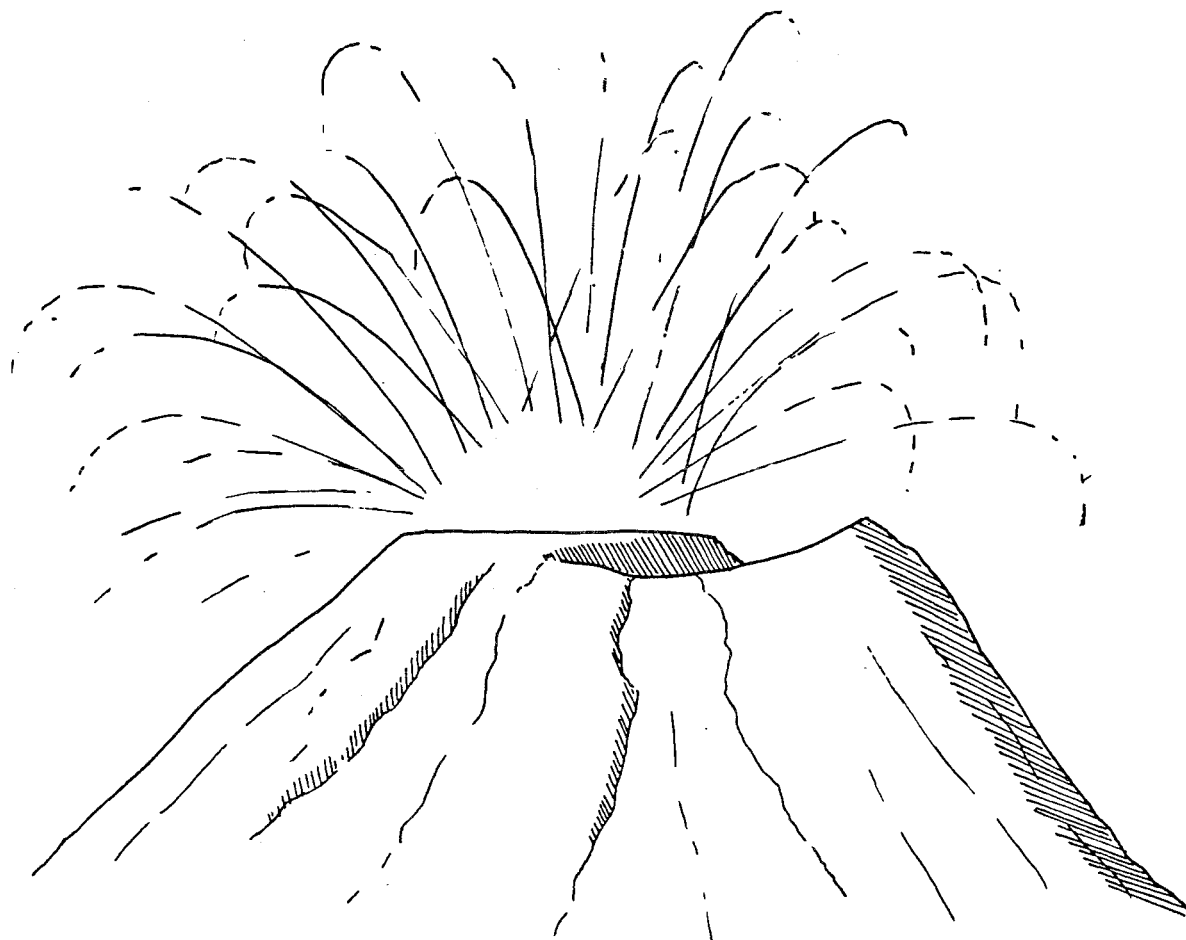
NATIONAL PARKS ARE KEPT FOR PEOPLE TO ENJOY PLANTS, ANIMALS AND LANDSCAPES THAT HAVE NOT BEEN CHANGED.

MOST OF NEW ZEALANDS LAND HAS BEEN CHANGED FOR FARMING, TIMBER MILLING, MINING AND TOWN AND CITIES.

NATIONAL PARKS ARE KEPT IN A NATURAL WAY FOR EVERYONE TO ENJOY.

PARK RANGERS LIVE IN OR NEAR THE NATIONAL PARKS TO HELP PEOPLE ENJOY THE AREA AND TO PROTECT THE LAND AND THE PLANTS AND ANIMALS.

TONGARIRO NATIONAL PARK'S SPECIAL LANDSCAPE ARE THE LIVE VOLCANOES.



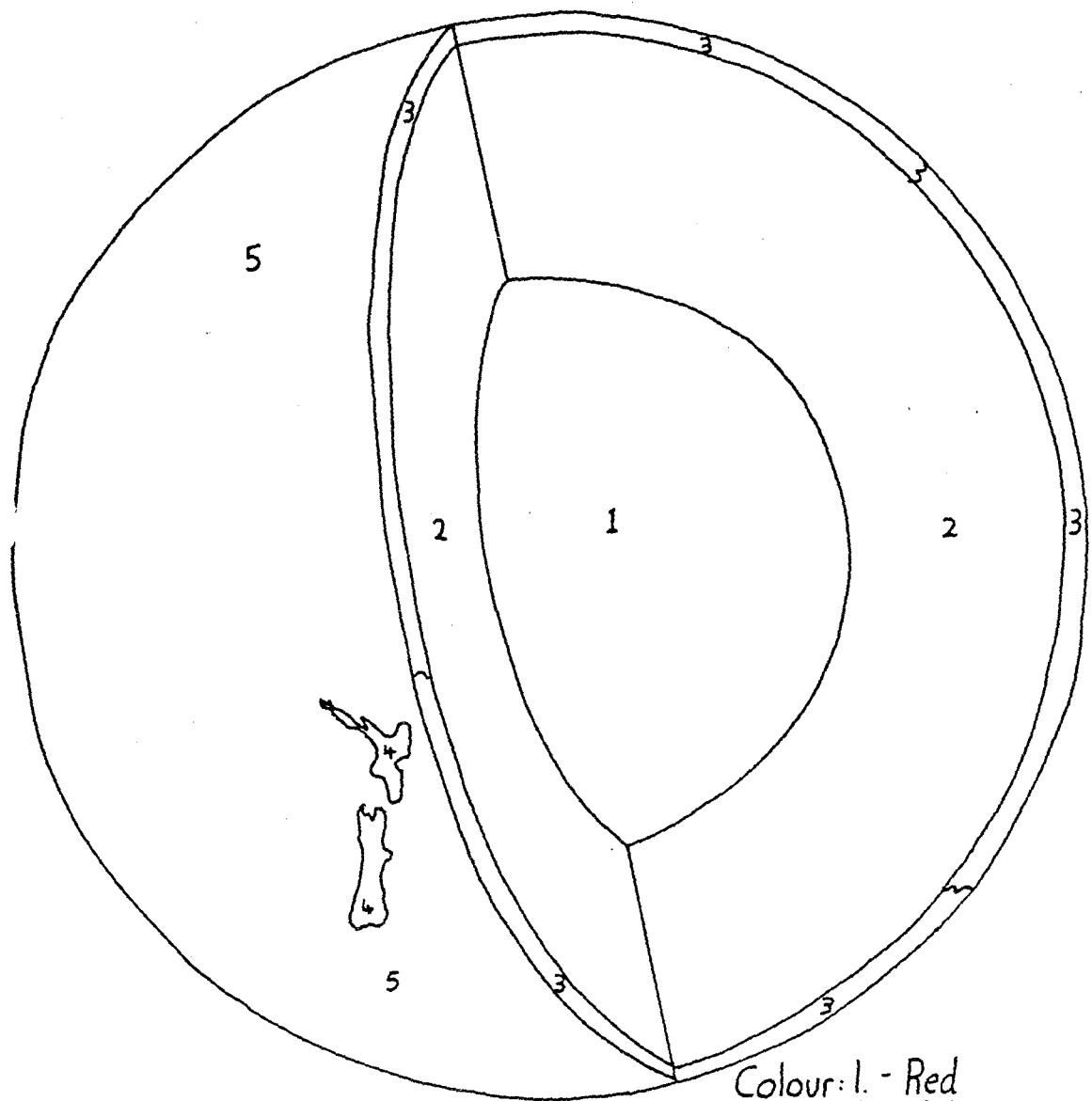
TOP OF NGAURUHOE

SCIENTISTS BELIEVE THAT THE WORLD IS MADE UP OF DIFFERENT PARTS.

VOLCANOES ARE THE MOST ACTIVE PART OF THE EARTH. THE EARTH HAS DIFFERENT PARTS. A PIECE OF THE EARTH HAS BEEN CUT OUT SO YOU CAN SEE INSIDE.

1. Is called the core. It is in the centre of the Earth.
The core is hot like a furnace.
2. Is called the mantle. The mantle is the thickest part of the earth. It surrounds the hot core.
3. Is called the crust. The thin crust is the other layer of the earth. It is broken up into large pieces which move around the top of the mantle.
4. Is the land we live on.
5. Is the ocean. The ocean covers more of the earth's surface than land.

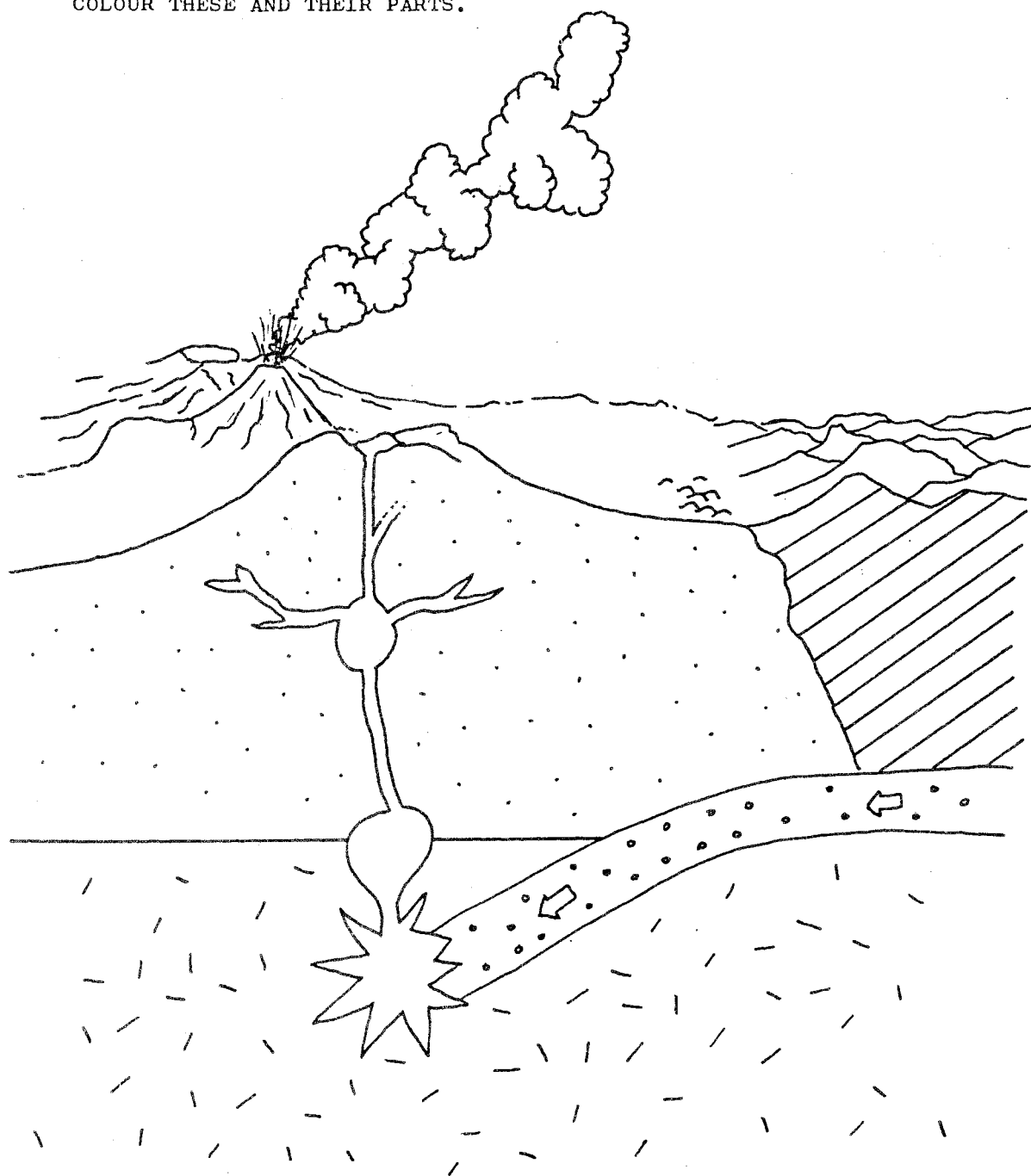
PLANET EARTH




Colour: 1. - Red
2. - Yellow
3. - Brown
4. - Green
5. - Blue

THERE ARE THREE DIFFERENT VOLCANOES AT TONGARIRO NATIONAL PARK.

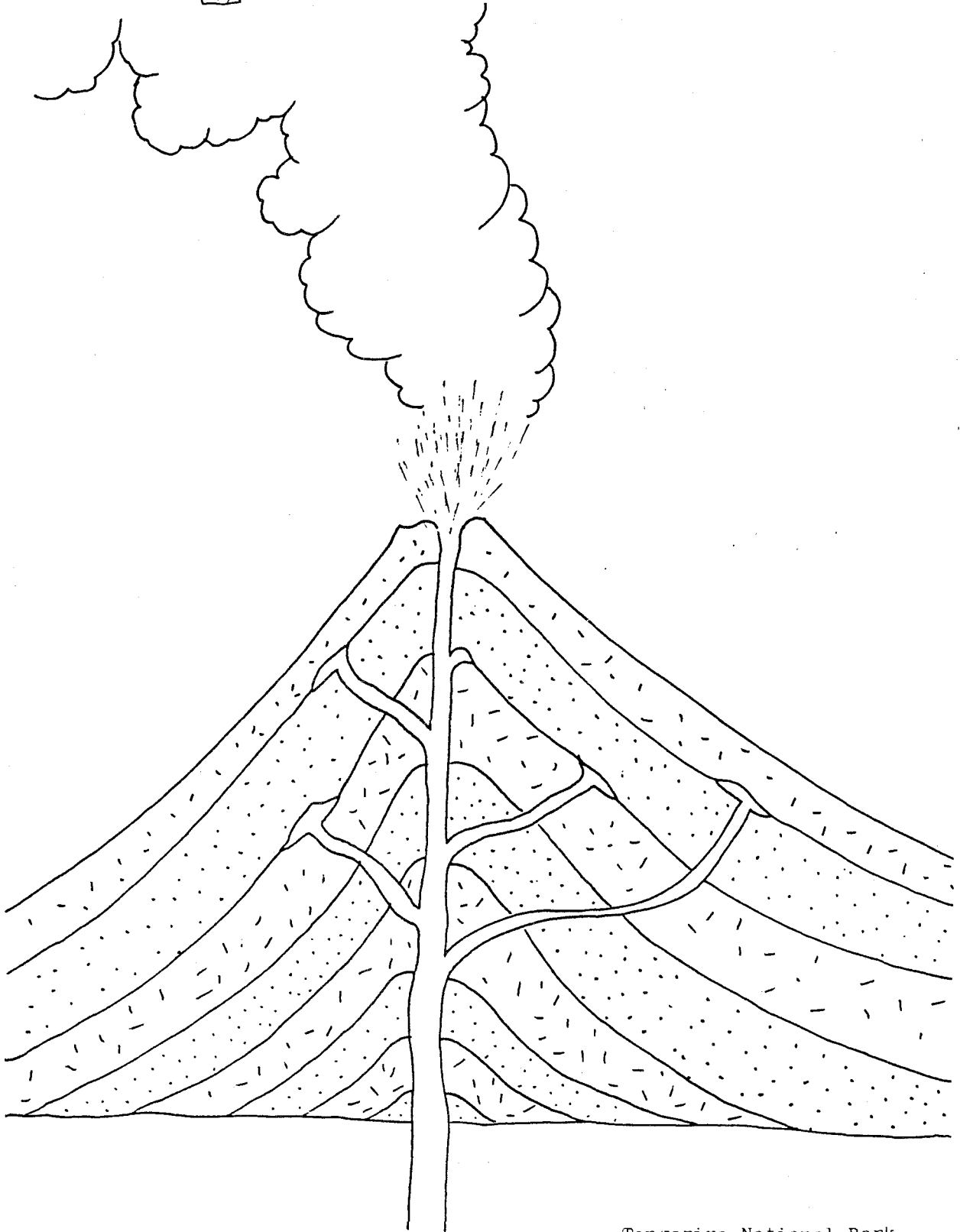
COLOUR THESE AND THEIR PARTS.



Tongariro National Park

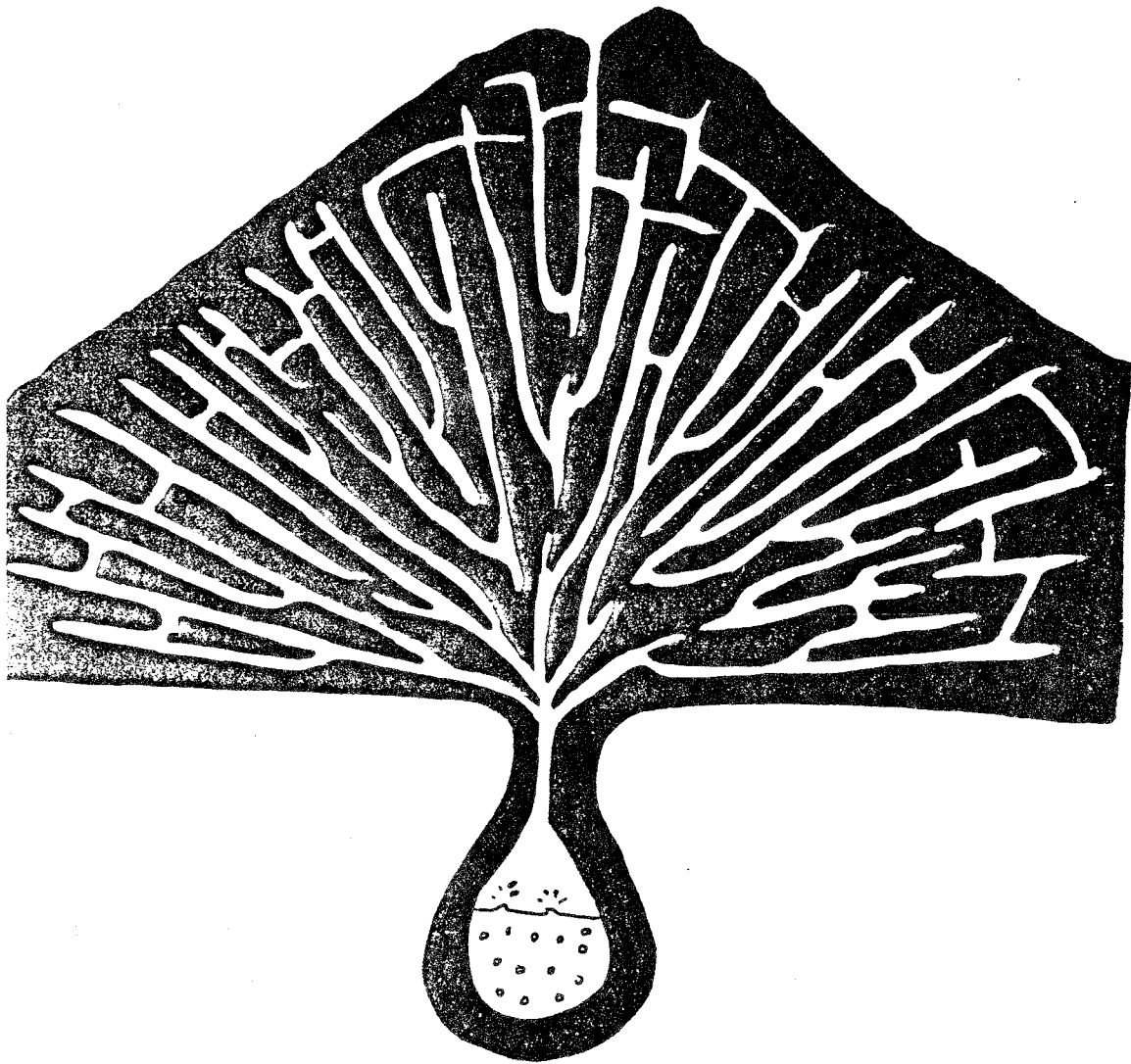
THE VOLCANOES OF TONGARIRO NATIONAL PARK ARE MADE UP OF LAVA 

AND ASH  . THIS TYPE OF ERUPTION BUILDS PYRAMID LIKE VOLCANOES



Tongariro National Park

NGAURUHOE MAZE



FOLLOW THE LAVA STREAM TO THE TOP OF THE
MOUNTAIN.

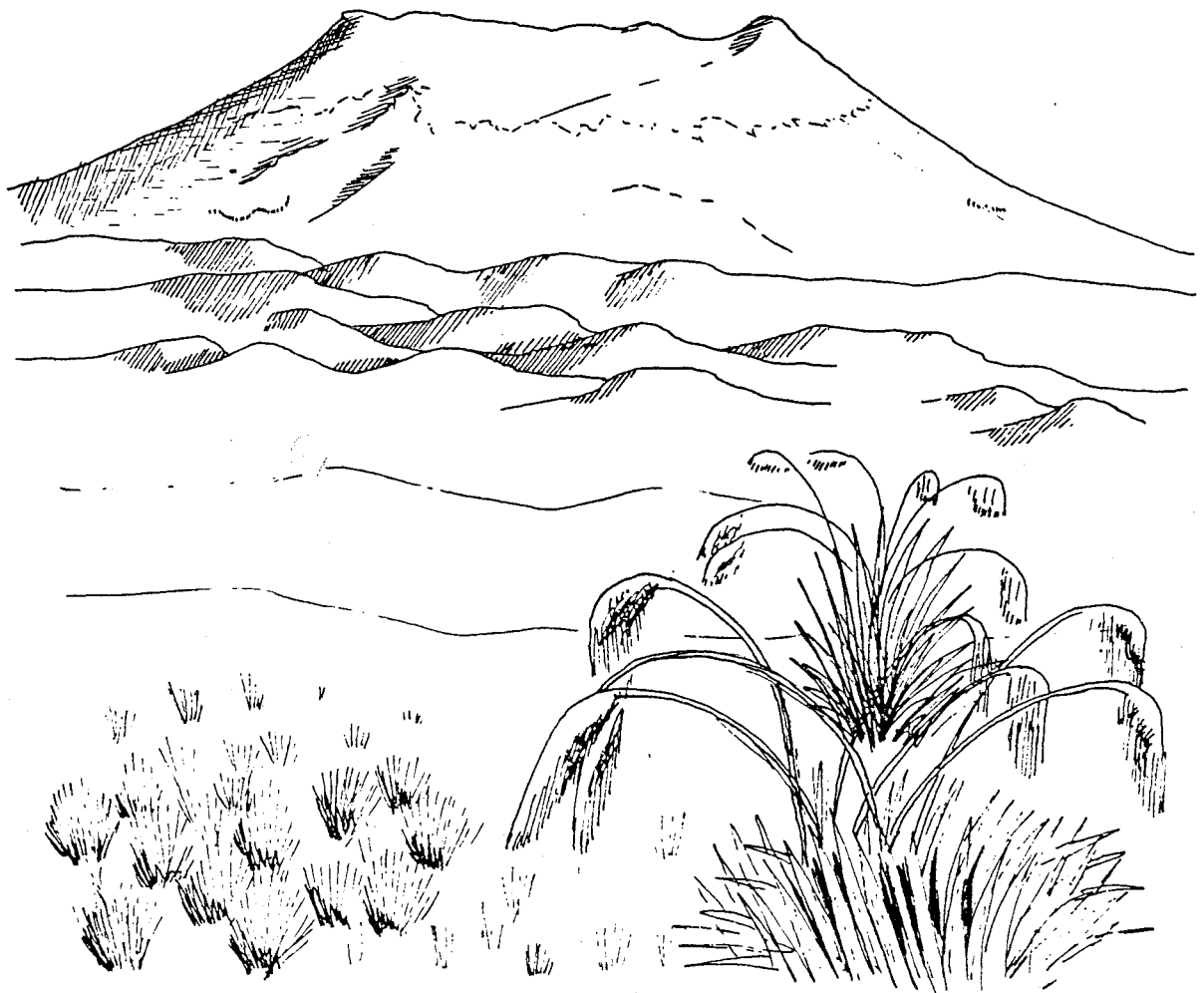
THIS MOUNTAIN IS ONLY 2500 YEARS OLD.

Tongariro National Park

MOUNT RUAPEHU IS AN OLDER VOLCANO. IT MAY BE AS OLD AS 1 MILLION YEARS.

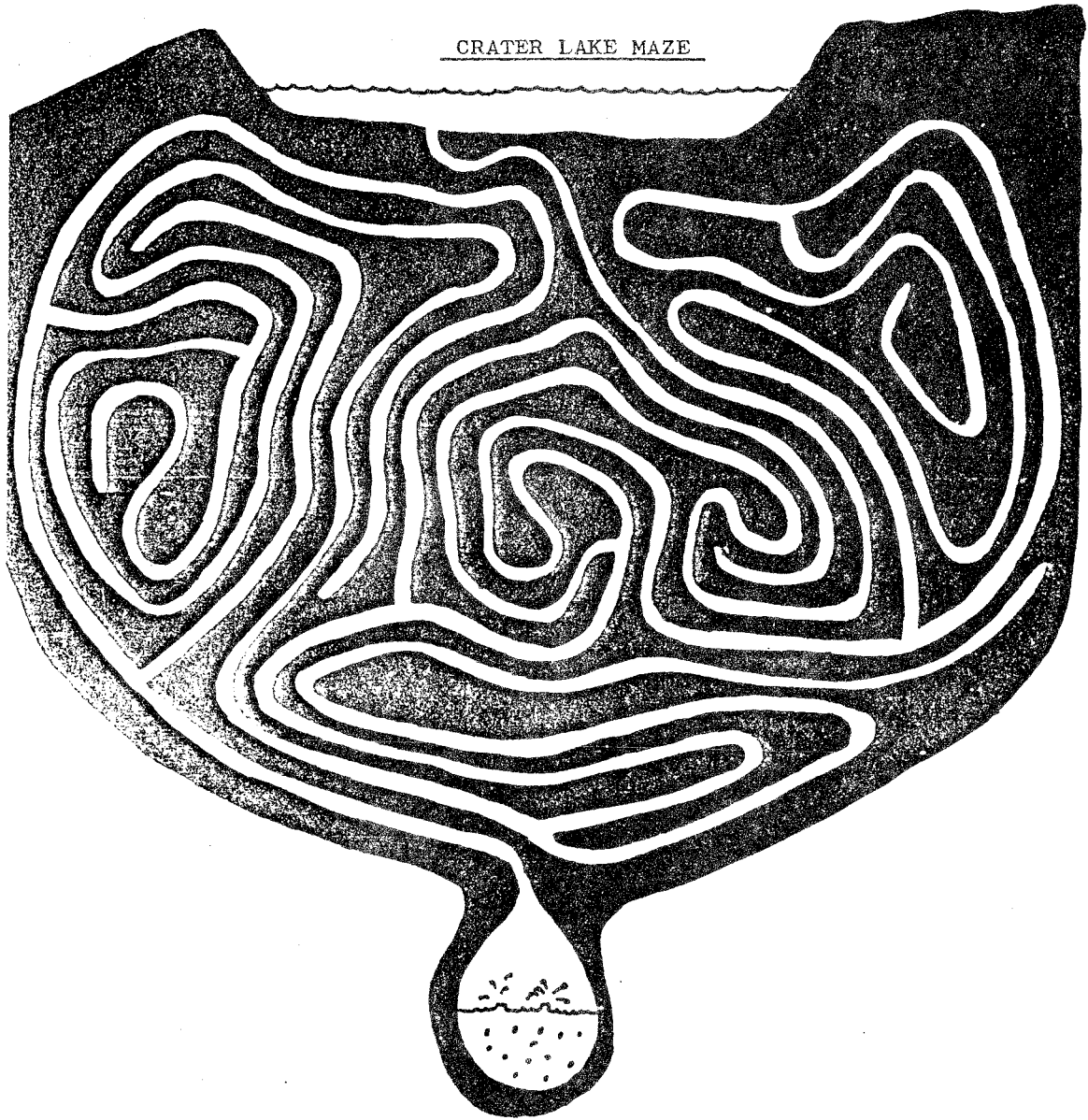
THE HILLS BEHIND TURANGI AND TAUPO ARE 200 MILLION YEARS OLD.

MOUNT RUAPEHU HAS A LAKE ON TOP.



Tongariro National Park

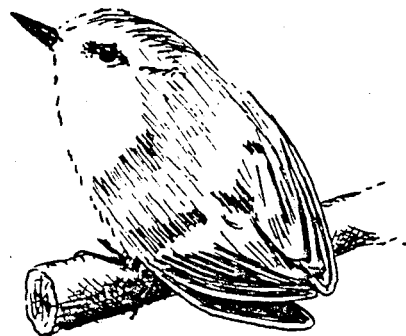
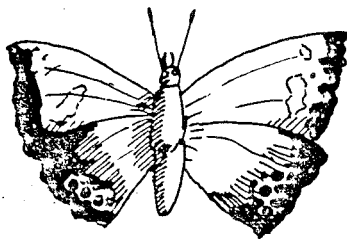
CRATER LAKE MAZE



FIND YOUR WAY TO THE TOP OF THE LAVA TUNNEL.

Tongariro National Park

IN THE PARK CAN BE FOUND MANY INTERESTING PLANTS, BIRDS AND INSECTS.



Tongariro National Park

APPENDIX THREE

MT COOK NATIONAL PARK QUIZ SHEET

PARK HEADQUARTERS QUIZ

The answers to the following questions can all be found on the displays in Park Headquarters.

Q. 1 What is the smallest riverbed bird in the Park?

Q. 2 How hot does it get in the Park? _____

Q. 3 When did the first ski-plane land on the Tasman Glacier?

Q. 4 What do you think snowshoes were used for? _____

Q. 5 When was Mount Cook first climbed? _____

Q. 6 Who were the first people to climb Mount Cook? _____

Q. 7 Why do you think the first climbing boots had nails in them? _____

Q. 8 What are climbing helmets used for? _____

Q. 9 How high do alpine plants grow? _____

Q. 10 Why are stoats, ferrets and weasels controlled in the Park? _____

Q. 11 Why does the stoats' coat change colour in the Winter?

Q. 12 How does the kea get its name? _____

Q. 13 How did people first visit this area? _____

Q. 14 What happened to the second Hermitage? _____

WORDS FROM A SAVAGE ?

In 1854, the "Great White Chief" in Washington made an offer for a large area of Indian land and promised a 'reservation' for the Indian people.

Chief Seattle's reply, published here in full, has been described as the most beautiful and profound statement on the environment ever made.

* * *

How can you buy or sell the sky, the warmth of the land?. The idea is strange to us.

If we do not own the freshness of the air and the sparkle of the water, how can you buy them?.

Every part of this earth is sacred to my people.

Every shining pine needle, every sandy shore, every mist in the dark woods, every clearing and humming insect is holy in the memory and experience of my people. The sap which courses through the trees carries the memories of the red man.

The white man's dead forget the country of their birth when they go to walk among the stars. Our dead never forget this beautiful earth, for it is the mother of the red man.

We are part of the earth and it is part of us.

The perfumed flowers are our sisters; the deer, the horse, the great eagle, these are our brothers.

The rocky crests, the juices in the meadows, the body heat of the pony - all belong to the same family.

So, when the Great Chief in Washington sends word that he wishes to buy our land, he asks much of us. The Great Chief sends words he will reserve a place so that we can live comfortably to ourselves.



THE STATEMENT OF CHIEF SEATTLE

THE STATEMENT OF CHIEF SEATTLE

APPENDIX FOUR

He will be our father and we will be his children.
So we will consider your offer to buy our land.

But it will not be easy. For this land is sacred
to us.

This shining water that moves in the streams and the
rivers is not just water but the blood of our ancestors.

If we must sell you land, you must remember that it is
sacred, and you must teach your children that it is
sacred and that each ghostly reflection in the clear
water of the lakes tells of events and memories in
the life of my people.

The water's murmur is the voice of my father's father.

The rivers are our brothers, they quench our thirst.
The rivers carry our canoes, and feed our children. If
we sell you our land, you must remember, and teach your
children, that the rivers are our brothers, and yours,
and you must henceforth give the rivers the kindness
you would give any brother.

We know that the white man does not understand our ways.
One portion of land is the same to him as the next, for
he is a stranger who comes in the night and takes from
the land whatever he needs.

The earth is not his brother, but his enemy, and when
he has conquered it, he moves on.

He leaves his father's grave behind, and he does not
care. He kidnaps the earth from his children, and he
does not care.

His father's grave, and his children's birthright, are
forgotten. He treats his mother, the earth, and his
brother, the sky, as things to be bought, plundered,
sold like sheep or bright beads.

His appetite will devour the earth and leave behind
only a desert.

I do not know. Our ways are different from your ways.

The sight of your cities pains the eyes of the red man.
But perhaps it is because the red man is a savage and
does not understand.

There is no quiet place in the white man's cities. No
place to hear the unfurling of leaves in spring or the
rustle of an insect's wings.

But perhaps it is because I am a savage and do not
understand.

The Indian prefers the soft sound of the wind darting
over the face of a pond, and the smell of the wind
itself, cleaned by a midday rain, or scented with the
pinion pine.

The air is precious to the red man, for all things
share the same breath - the beast, the tree, the man,
they all share the same breath.

The white man does not seem to notice the air he breathes.
Like a man dying for many days, he is numb to the atch.

But if we sell you our land, you must remember that the
air is precious to us, that the air shares its spirit
with all the life it supports. The wind that gave our
grandfather his first breath also receives his last sigh.

And if we sell you our land, you must keep it apart and
sacred, as a place where even the white man can go to
taste the wind that is sweetened by the meadow's flowers.

So we will consider your offer to buy land. If we decide
to accept, I will make one condition: The white man must
treat the beasts of this land as his brothers.

I am a savage and I do not understand any other way.

I have seen a thousand rotting buffaloes on the prairie,
left by the white man who shot them from a passing train.

I am a savage and I do not understand how the smoking
iron horse can be more important than the buffalo that we
kill only to stay alive.

What is man without the beasts?. If all the beasts were
gone, man would die from a great loneliness of spirit.

For whatever happens to the beasts, soon happens to man.
All things are connected.

You must teach your children that the ground beneath
their feet is the ashes of your grandfathers. So that
they will respect the land, tell your children that the
earth is rich with the lives of our kin.

Teach your children what we have taught our children,
that the earth is our mother.

Whatever befalls the earth befalls the sons of the earth.
If men spit upon the ground they spit upon themselves.

This we know: The earth does not belong to man; man
belongs to the earth. This we know.

All things are connected like the blood which unites one
family. All things are connected.

Whatever befalls the earth befalls the sons of the earth.
Man did not weave the web of life; he is merely a strand
in it. Whatever he does to the web he does to himself.

Even the white man, whose God walks and talks with him
as friend to friend, cannot be exempt from the common
destiny.

We may be brothers after all.
We shall see.

One thing we know, which the white man may one day
discover - our God is the same God.

You may think now that you own Him as you wish to own
our land; but you cannot. He is the God of man, and His
compassion is equal for the red man and the white.

This earth is precious to Him, and to harm the earth is
to heap contempt on its Creator.

The whites too shall pass; perhaps sooner than all other
tribes. Contaminate your bed, and you will one night
suffocate in your own waste.

But in your perishing you will shine brightly, fired by
the strength of the God who brought you to this land and
for some special purpose gave you domain over this land
and over the red man.

That destiny is a mystery to us, for we do not understand
when the buffalo are all slaughtered, the wild horses
are tamed, the secret corners of the forest heavy with
scent of many men, and the view of the ripe hills blotted
by talking wires.

Where is the thicket? Gone
Where is the eagle? Gone
The end of living and the beginning of survival.

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A framed copy of this statement on the environment now
hangs in Park Headquarters. It was presented to the
Park by Mr S. Hemsley.

