AN INTEGRATIVE APPROACH TO THE DESIGN OF PLAY-LEARNING ENVIRONMENTS FOR HANDICAPPED CHILDREN

by

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Abstract

In 1979, a planning committee was established at the G.R. Pearkes Centre for Children in Victoria, to look into the possibility of creating an outside play environment for the children attending the centre. Preliminary consideration of the 'state of the art' relative to play centre design discovered that there were no facilities of this type available to study. Furthermore, there were no examples of adventure or creative playgrounds to be found in the Greater Victoria region, for disabled or for able-bodied children.

Although the first play environment to be designed specifically for handicapped children was built in 1967 (in Chelsea, England), there are still very few of them in existence today, especially in North America. The provision of relevant settings for children to play and develop in has not been successfully attended to, and facilities are rarely designed according to user-requirements. Because the integrative design approach to user-settings is virtually at the embryo stage of development, the thesis endeavors to demonstrate why such amenities are necessary and how they could be designed and implemented.

A background of children's participation in the urban environment, through play and daily learning processes, is traced to the reform movements of the last century. This era produced the garden city projects, followed by urban parks, municipal playgrounds and the development of creative playgrounds in North America.

The author, who became part of the GRPC planning committee in 1980, carried out preliminary research at the centre and at the Bob Berwick

Memorial Centre (BBMC) in Vancouver. Additionally, investigative correspondence was a feature of this period and information or support was forwarded from various parts of the U.K., Sweden, Australia and the United States. During the subsequent programming period, the name for the project was altered to comply with the new philosophical approach; hence the title 'Integrative play-learning centre' was coined. Also at this time, various methodologies were investigated and discussed until it became apparent that a quantitative approach would not be practical or very feasible.

It was resolved that observational research should take place at both BBMC and GRPC and that structured research should be supplemented by participant observation. Furthermore, as the research at BBMC was subjected to time constraints, the program was ideally suited for a pilot project. Consequently, the methodology was refined during the much more comprehensive research program at GRPC. All of the design-relevant-information which was collected in this manner was transcribed into design principles by the planning committee. These were cross-matched with developmental goals in a matrix, from which design priorities were identified.

The author was able to form schematic outlines from these priorities and eventually a concept design materialized which was presented to the board for its approval. In the thesis, the development of the play-learning centre is described sequentially from inception to partial completion. The project has proved extremely difficult to implement as there are many barriers to overcome in all such innovative schemes.

It should be emphasised however, that difficulties in funding projects of this nature are often attributable to dominant societal value systems, which are able to effectively demerit new approaches to established situations.

The design-relevant information which was elicited for the purpose of creating the play-learning centre was also useful for the establishment of certain generic principles. According to Moore's (1979) Research-Programming-Design-Evaluation (RPDE) process, such generic knowledge is capable of becoming recycled and marginally improved upon with each new project, as it emerges. It is also interesting to note that the integrative approach to specialist environmental design has become much more acceptable during the five years that have elapsed since the inception of this project.

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Finally, gratitude is expressed to all the many children, able-bodied and disabled, who have been watched during the course of their daily regimes at both centres above and at other centres, schools and simply 'places.'

LIST OF ABBREVIATIONS

GRPC - G.R. Pearkes Centre (for handicapped children)

BBMC - Bob Berwick Memorial Centre

QAH - Queen Alexandra Hospital for children

HAPA - Handicapped Adventure Playground Association

NVRC - North Vancouver Recreation Commission

VSB - Vancouver School Board

RPDE - Research-Programming-Design-Evaluation

Chapter 1

Identifying the Problem

1: Background

There has been a substantial increase in the value placed upon play by our society since the late 1960s. Many scholars have written on the importance of play as a developmental process, as well as underlining the need to pay more attention to the child as citizen and participant. Lady Allen (1968), Ward (1978), and Hill (1980) have studied infants responding to the objective world, and Ward (1978) has chronicled the changing status of the child during the last one hundred years. All of this work has had implications for the design and provision of environments for children. Recently these implications have extended towards the developmental requirements of children who are disabled.

Children, through play and development, form an identity with their environment:

> The child... seeks to make a place in which to find a place to discover self (Cobb, 1969, p.125).

If, as Piaget suggests, the structuring of the world develops through childhood, this concept leads to an understanding of a person's identity as, in part, a function of places and things. In other words, the child's imposed environment can be held at least partly responsible for the manner in which he grows up. Additionally, the child's level of awareness, perception, and the ability to recall are based on early interaction with immediate surroundings:

> Intensity of recall and openness to environmental experience both depend on childhood experience of landscapes (Tuan, 1974, p.56).

Invariably, the child's early interaction with his surroundings is in play form. Although play is universal, it has not always been accepted by adults and (until recently), was not tolerated in public places like parks and thoroughfares. Even now, there are 'proper' places which are set aside for children for play purposes in schools, hospitals, shopping centres and municipal parks. The quintessential paradox of play is that although most people know what it is, it is difficult to define. In fact, scholars in various interrelated disciplines have expressed definitions for play, extending back at least to Piaget (1929).

Sutton-Smith (1976, 1978) has pointed out that definitions are attached to specific theories of play and that there have been many different theories of play. Such theories are usually attributable to overlapping disciplines and individual perspectives:

> Theories of play have derived their basic metaphors from ritual, biology mechanics, psychosexual conflict, ethology, and cognition (Sutton-Smith, in Schwartzman, 1978, p. 13).

Other earlier definitions of play had contained phrases such as: not serious; no material interest; no profit; unproductive. Today however, scholars prefer to regard play as communication or process. Sutton-Smith has identified a definition (Miller, 1973) which he maintains is a pivotal one in so far as it leads the way from the purious 'no-value' attitudes to one of (perhaps) experiencial learning:

> Play is activity, motor or imaginative, in which the centre of interest is <u>process</u> rather than goal. There <u>are</u> goals in play, but these are of less importance in themselves than as embodiments of the processes involved in attaining them (Miller, 1973, p. 97).

2: Environmental Design for Children

Designing for children usually means creating a playing environment or playground, which of course separates children from the real (adult) world. In fact, Ward (1973, 1978) has often spoken out against the continued use of the standard types of playground. Instead, he advocates a revolution of sorts, in which urban-environmental design is carried out in such a manner as to afford children a participatory role.

The paucity of recognizable innovation in urban-environmental design for young people is often not the fault of designers. The problem has more to do with the lack of a true understanding of the needs of children, coupled with a real fear on behalf of planners and other decision-makers of appraising innovation constructively. This official attitude is very deep rooted because children, as a group, are unable to signal their preferences. They are also unable to vote.

Some pioneering work in environmental design and education for children has been undertaken in England, Scandinavia and America during the past fifteen years. Most notable is the work of the late Lady Allen of Hurtwood (1967). Lady Allen was founder, first chairperson, and president of the London-based Handicapped Adventure Playground Association (HAPA). HAPA has been directly responsible for several innovative play-environments in Greater London and indirectly responsible for other projects in England, Europe, North America and Australia. The work of Bengtsson (1970) has included not only community playgrounds, but landscaping for entire neighbourhoods. It is most unfortunate that so

little of this type of environmental planning takes place in North America. However, the work of Moore (1974, 1980), Hart (1979) and Moore et al. (1979) has done much to change this situation.

3: Children's participation in the urban environment

The fabric of the city is constantly changing, and in many instances the changes that occur are unsympathetic to the needs of children. Hence, children are increasingly unable to develop a participatory role within our modern, yet complex, urban environments. They are in effect, being 'left out of the action.' This phenomenon is noticeable not only in city centres, but has also become a problem in many suburban environments which evolved primarily as places in which to rear children. Contemporary critics of planning often point out that the layouts of earlier architects and urban designers are more sensitive than are many modern subdivisions. The latter continue to be built by speculative developers with little or no regard for socio-behavioural considerations.

The day-to-day play activities of the child consist of a process of responses to the environment. Ideally therefore, the entire fabric of the city might be regarded as a 'playground.' As Ward (1978), has stated:

> ... the point is that the streets, the local petrol station, the housing estate stairway... are part of the natural habitat of the child. Our problem is not to design shops, streets, housing... that can lend themselves to play, but to educate society to accept children on a participating basis (p. 87).

In reality this concept no longer seems possible, which is why the need for specially designed children's environments has arisen. Ward is really advocating a social revolution which is not likely to happen overnight.

But it was possible for children to participate in their environments during the 1920s and 1930s within the residential communities which have been termed 'urban villages' (Gans, 1962). Such communities had clearly defined geographical boundaries; people knew when they were in them or outside them. The bulldozing of countless acres of these older communities has meant the end of the urban village in most of the world's modern cities.

During the 1950s and 1960s, architectural fashion was responsible for producing many of the cold concrete, glass and steel complexes which are now so much a feature of the urban landscape. Brazilia for example (the city of 'pure form'), was obviously not designed in accordance with the behavioural needs of the populace (Tuan, 1974; Porteous, 1977). Yet there are many interesting behavioural variables to be considered in investigating the relationship between children and the environment. For example: Children from families residing in the lower socio-economic environs spend a high percentage of the day in the outdoors. Additionally, the percentage of overall time spent outside, for this group of children, is considerably higher than that for children from middle class families (Newson and Newson, 1976).

Ward (1973, 1978) and Hart (1979, Perez and Hart, 1980) have investigated the use of the street by working class people and their children. The 1930s, especially, was a time when the city environment contained more livable features than is possible today. What is missing now in residential neighbourhoods is the street as resource. For children this means play resources. Recently, street play-nodes have become a

popular concept in New York, London and other major cities. Dattner (1969), who instigated this concept in New York, was merely formalizing something which had always been there (Figure 1.1).

4: Coping with the physical environment: the handicapped child

In many respects, the moral and social reform movements of the last century tended to segregate the fit and able-bodied from the less fortunate. The attitude was that the latter were in some way 'accountable' for their plight. Even now, this kind of social Darwinism persists and may indeed be partly responsible for the prolonged institutionalization of some members of the handicapped community.

Sandhu (1976) has pointed out that until very recently there have been many people throughout society who maintained that children do not notice much of their environment as they grow and develop. Fortunately, there are also those who have shown that this concept is at variance with reality (notably Piaget, 1929; Bishop, 1975). It is, no doubt, possible to find people who achieve success in spite of a childhood spent in deprivation and squalor, but they are definitely in the minority. Even so, it remains unclear how children really learn to cope with their environment, and how this coping relates to individual abilities. There is a paucity of material, research or otherwise, which concerns coping abilities and the development potential of the handicapped child within the urban environment. Until very recently the child with special needs was not expected to try to cope with anything outside of the institution in which he invariably spent most of his time. This was most convenient for the rest of us, who were saved from feelings of guilt and embarrassment

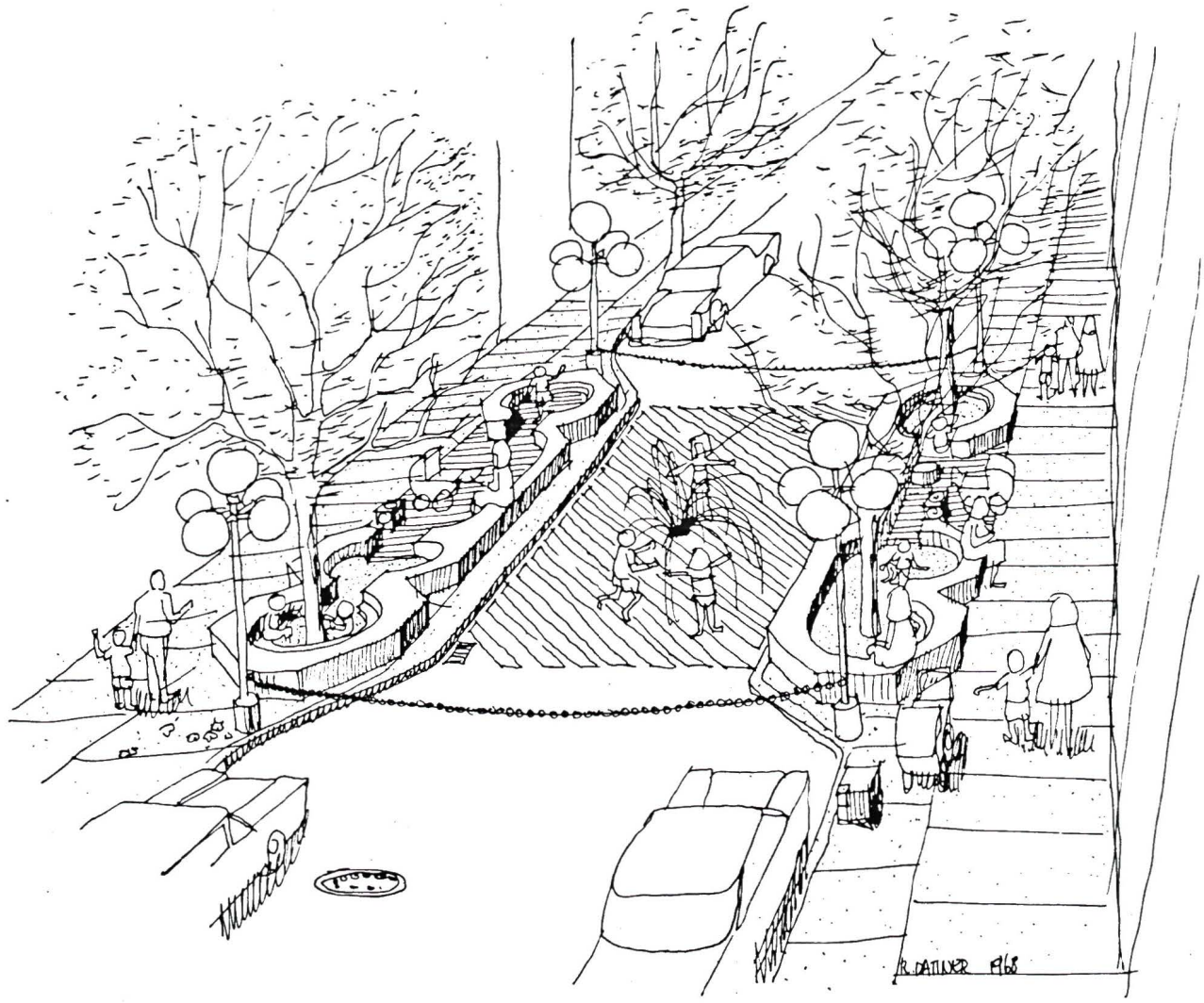

FIG. 1·1. STREET-NODE CONCEPT (DATTNER 1969).

by not having to witness these less fortunate children struggling to accomplish elementary tasks in the everyday environment.

An individual must learn as much as possible from his surroundings in order to develop environmental competence. In accomplishing this, children tend to form an identity with their own surroundings (Cobb, 1969; Hart, 1979; Riley, 1979). The gaining of such competence eventually enables the developing child to become a functioning adult in society. Yet in an urban environment that is constantly changing, it becomes increasingly difficult for children to attain a suitable level of environmental competence. This difficulty is compounded many times when the child is disabled. Hence, it becomes of paramount importance not to segregate the handicapped child in separate societal 'camps,' but instead to develop ways in which handicapped children may integrate themselves into the normal flow of everyday behaviour.

5: Needs

Hart, (1980, p.253), has pointed out that as early as 1914:

> ... social welfare workers were citing incidents of playgrounds lying idle while children roamed the streets in search of danger and adventure.

These early playgrounds were an outcome of nineteenth century moral reform. Play, as a function, was still considered somewhat immoral and a 'waste of time.' The aim was to create places where children could recreate in a constructive manner, out of the way of adults. The childrens' real needs (user-needs) were never a consideration.

The non-use of stereotypical playgrounds is still a cause of puzzlement for many municipal planners and politicians. The solution to

this problem is a behavioural one; children's needs should be the basis for planning and subsequent design. If the needs of children are continuously overlooked, which in turn means a lack of design-relevant information, it follows that similar information with respect to handicapped children must be seriously scant. Until recently, it would not have been possible for an 'outsider' to investigate the environmental needs of handicapped children. The majority of disabled children were institutionalized, or were kept permanently at home by their caretakers, usually the parents. Interestingly, many attitudinal changes have come about in recent years, as a result of the efforts of outsiders. In the present context, an outsider would be a person not in the medical, therapeutic or caretaking professions (Lady Allen, 1968; Dattner, 1969; Moore, 1979; Sandhu, 1976).

It is generally accepted that play is intrinsically important to a child's development (Ellis, 1973; Hutchison, 1979; Sandhu, 1976). Play, however, has as many definitions as it has purposes, but the major purpose of play is to encourage the creative potential of children. In his early investigations, Dattner discovered that all children play (in order to develop), regardless of their individual abilities. The play of disabled children does not vary significantly from that of 'normal' children. However, the approach to play by handicapped children may vary considerably, and further, creative potential may be stimulated by environmental cues (Sandhu, 1976). Wilkinson (1982) has stated that the capacity for stimulation into action is derived from:

1) an unstructured environment which has guidelines, because structured play may not be sufficient for

learning to proceed; and,

2) an environment which takes into account children's emotional attitudes and self-concepts (Piaget, 1962). The lack of creative opportunities leads to boredom and monotony; the result is that individual children do not reach their full level of physical, social, and cognitive development.

If the handicapped child is to become part of the mainstream of society, the need for appropriate play opportunities is evident. Such opportunities do not exist in the day-to-day urban environment, except for able-bodied children, and then only in a limited way. During play, children learn much from interaction with peers and as Hutchison (1979) has demonstrated, a child who is mentally retarded will gain confidence in play-interaction. In fact, in play, physical and mental differences are quite acceptable, or regarded as novel (Lady Allen, 1968).

The needs of the handicapped child, in this context, may be summed up as:

i) Opportunities for interaction with peers;

ii) Challenging, stimulating, but safe environments in which all children are able to develop physically and creatively;

iii) Places where co-operation may be developed and encouraged, creativity acknowledged and individualism respected.

The criteria thus identified may only be realizable in a suitably designed total environment. This type of environment may be referred to as an integrative play-learning centre.

6: Goals and Rationale

One of the most important characteristics of this study is that it attempts to incorporate knowledge and research material from several

disciplines. In fact, the lack of background literature in this area is partially due to the fact that the subject matter is inter-disciplinary. The observational research which was undertaken for this project at the Bob Berwick Memorial Centre (BBMC) in the University of British Columbia, was the first research that had been carried out there by an environmental designer, or by a person other than a member of the medical or caretaking professions.

It is evident that an interdisciplinary approach is necessary, in this context. Usually, the spaces within buildings and immediately outside are designed by architects, whereas disabled children are given care and therapy by physicians, physiotherapists and specialized teaching staff. Unfortunately, the majority of architectural design briefs do not include behavioural criteria and allow no time for relevant research. Architects would not normally allocate time for such information unless the client explicitly required it. Architecture remains a functional discipline, attending to the following:

i) Design of floor plans based on areal allocation;

ii) Design of elevations according to architectural 'fashion,' the architect's preferences, and possibly the client's wishes;

iii) Design of functional details;

iv) Co-ordination of design with structural, mechanical and electrical engineers;

v) Cost estimation, organization of job 'tenders,' and subsequent supervision of construction.

Outside areas are often the province of a landscape architect who attends to exterior surfaces and beautification. In most instances, neither the architect nor the landscape architect will be called upon to consider

behavioural criteria from the user-group. Unfortunately, this problem is particularly acute with such building types as hospitals, clinics, schools, and other places where the environment should be person-supportive.

In recent years, the behavioural use of space has been investigated from an interdisciplinary point of view (Dattner, 1969; R. Moore, 1974; Porteous, 1977; G.T. Moore, 1979; Sandhu, 1976). Much of the work which has been undertaken in this area involves the normally separate disciplines of architecture, planning, environmental design, environmental psychology, geography and sociology. Additionally, the work of Sandhu and G.T. Moore has incorporated knowledge gained from paediatricians, physiotherapists, occupational therapists and psychologists. The planning, designing and implementation of an integrative play-learning centre should incorporate most of the above. Such a project has been undertaken by the author at the G.R. Pearkes Centre (GRPC) in Victoria. The project is the basis for this study. The goals of the thesis therefore, include the following:

- To identify and acknowledge a need for a new approach to the design of play environments for children;
- To develop a design approach based on user requirements;
- To design for implementation, an environmental facility in which all children may participate, regardless of ability.

Insofar as the thesis demonstrates that the design model for the play learning centre at GRPC is the outcome of research, goal-setting and programming, it should also be stressed that the building of the centre itself is directly attributable to the research as described in Chapters 4 to 6. Generally, the planning process involved with most projects incorporates the formulation of goals. However the process is often

linear. Figure 1.2 illustrates how this linearity may be altered to include relevant evaluation. Hence, the design process may evolve in a cyclical manner (see Porteous, 1977, p. 311, and Moore, 1979). The planning process model used by Moore seemed to be a particularly appropriate one to use for the play-learning centre. It is referred to as the Research-Planning-Design-Evaluation (RPDE) process. This cyclical process is shown in Figure 7.4.

7: Intentions and Format

As the GRPC project is prototypical, it was not possible to evaluate an existing environment or centre. The design of the play-learning centre in this case relied on the findings from an observational research program together with interviews and meetings with medical staff and teachers at GRPC and BBMC. It was intended from the outset to utilize and incorporate previous knowledge as far as it was possible to do so. In this respect, other playground types were analysed and the evolution of the play environment described (in Chapter 2). Similarly, Chapter 3 presents an overview of the child's place in the changing urban environment. Hart's work (1979) on place experience provides a transition section which leads into the literature which is concerned with the design of play environments for children.

As with most new approaches to design, there are many barriers to overcome before implementation may commence. The first of these is usually found in the dominating social prejudices of the time. Chapter 4 compares such normative expectations with user-needs. The two centres where

research took place are described and the final section of this chapter outlines the development of the integrative play-learning concept.

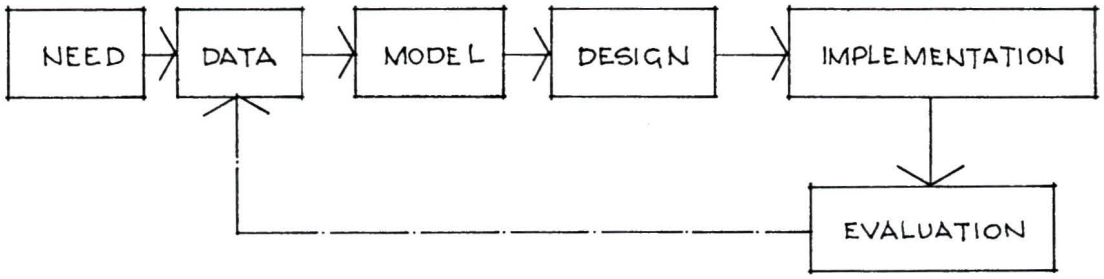

FIG. 1·2

Chapter 2

Historical Perspective

1: Urban Parks

The best known and the most comprehensive of the urban parks are those which are now firmly established in the cities of Europe. These parks, especially those in London and Paris, were inherited from land previously owned by the ruling classes, aristocratic families, or royalty. There was no such property in New York, but it is certain that had Frederick Olmstead and his colleagues not been so persistent in promoting their design for Central Park at the end of the last century, the area which is now occupied by the park on Manhattan Island would be covered with office towers.

Parks themselves emerged in cities as a result of the efforts of people blessed with foresight and a realization that parks would become a vital resource for the public as urban centres became larger and more technologically complex. Certainly, designers and planners like Stein and Wright in America, and Howard in England, were very conscious of the importance of parks in cities (Carver, 1962). The new town of Radburn was designed by Stein and Wright in 1928, but it was modelled philosophically upon the garden cities of England which Ebenezer Howard had pioneered at the end of the nineteenth century.

The garden-city movement which started with Howard's project for Letchworth and Welwyn (Howard, 1902) was, in approach, the reverse of Olmstead's designs. Whereas Olmstead was proposing parks within the city, Howard's schemes were for cities in parks (or gardens). Howard's

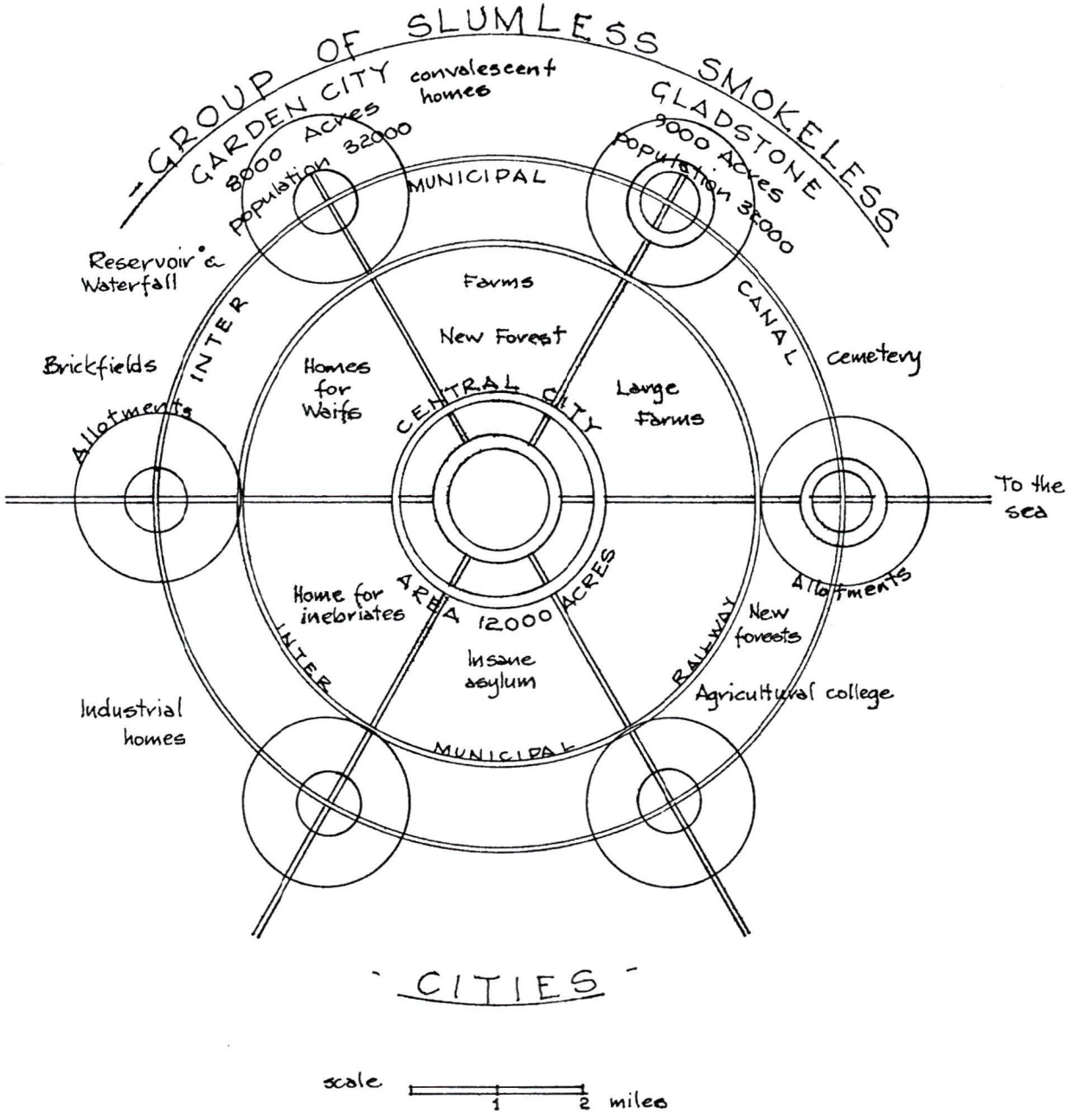

FIG. 2·1 EBENEZER HOWARD'S FIRST DIAGRAM FOR THE SOCIAL CITY
From: Tomorrow: A Peaceful Path to Real Reform, 1898.

philosophy was an outcome of the nineteenth century reform movements. He saw that family life in London and other large cities was constrained by lack of space and industrial pollution. His solution was to decentralize working communities into the 'healthy' countryside. "Let city growth take the form of satellite towns thrown out into the green fields" (Carver, 1962, p.33).

In the prototypical model for the garden cities, the civic buildings of each satellite town are at the centre, surrounding a formal park. A much larger park surrounds the centre, in which Howard envisioned space for schools and playgrounds. The residential neighbourhoods face inwards and the towns' industry is strung out around the circumference. However the real significance of Howard's vision for the social city can be discerned in an earlier diagram (Figure 2.1). This diagram appeared in the first printing of Howard's work in 1898 entitled, Tomorrow: A Peaceful Path to Real Reform.

During the years between the two world wars, many urban parks were created and the garden city movements were, in part, responsible for this. Additionally, the perceived need for recreation and physical development was responsible for setting aside places where children could constructively recreate. Thus the municipal playground came into being. Notwithstanding other comments, there does seem to have been a period before the stereotypical playground was firmly established when it was possible for the entire community to use civic parks comprehensively. The use of such parks is perfectly documented by the early writing of Dylan Thomas.

> ... And that park grew with me; that small, interior world widened as I learned its names and its boundaries; as I discovered new refuges and ambushes in its miniature woods and jungles... (Thomas, 1954, p. 3).

For Thomas, the urban park was clearly an essential part of childhood development. It was a place where much of consequence happened or started from. The recollections and reminiscences of Thomas form a perfect example of the child's identification with familiar environmental settings. Additionally, and as Riley (1979) has suggested, this type of identification during childhood has important implications for assessing places in adult life. The recollections of Dylan Thomas are from the period 1920 to 1930. At the end of this period he used his park for chasing and courting girls. Presumably the girls used the park for the same reasons.

The civic parks of the 1930s functioned as community or neighbourhood centres. Much has been written about the halcyon days of such parks where people of all ages interacted or found something of consuming interest to occupy their leisure moments. Gillingham Borough Park in England was a typical comprehensive community park which was laid out in the early 1920s. As Figures 2.2A and 2.2B illustrate, it is situated at the nucleus of the area and contains all the quintessential features of its genre. The following is a lyrical account of the park, from the mid 1930s:

> It was nice in the park. It was a large park, some 20 acres, and well planted... after school in summer and at weekends, there were plenty of people about. Groups of boys played football on the central stretch of lawn. Girls sauntered along the paths in twos and threes, gossiping and chaffed by lads preening themselves in their newly acquired adult clothes. Old men reminisced on benches, and younger people did their constitutional six rounds of the park. There were nannies with prams... children with hoops, children with tops, children with tricycles, children playing with balls. Often but particularly on Sunday summer afternoons when a brass band played on the central

KEY:

A. Aviary B. Bandstand

C. Scaffolding & changing rooms for vaudeville concerts (summer only).

c. benches (about 200 overall).

G. Central grassed area.

K. Kiosk. P. children's play

R. roller skating on paths

S. Shelters T. Tank.

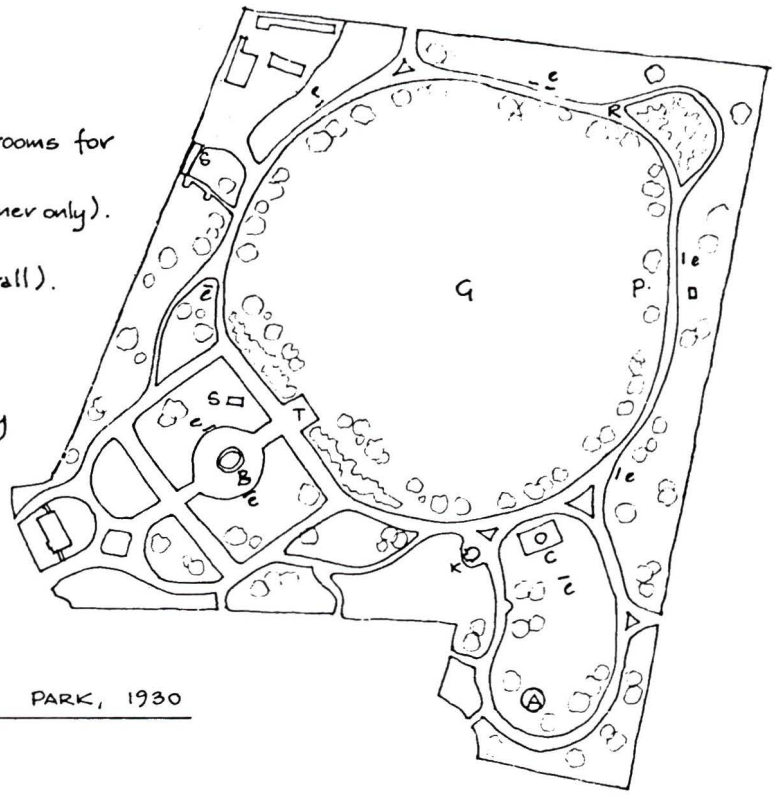

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FIG. A. GILLINGHAM BOROUGH PARK, 1930

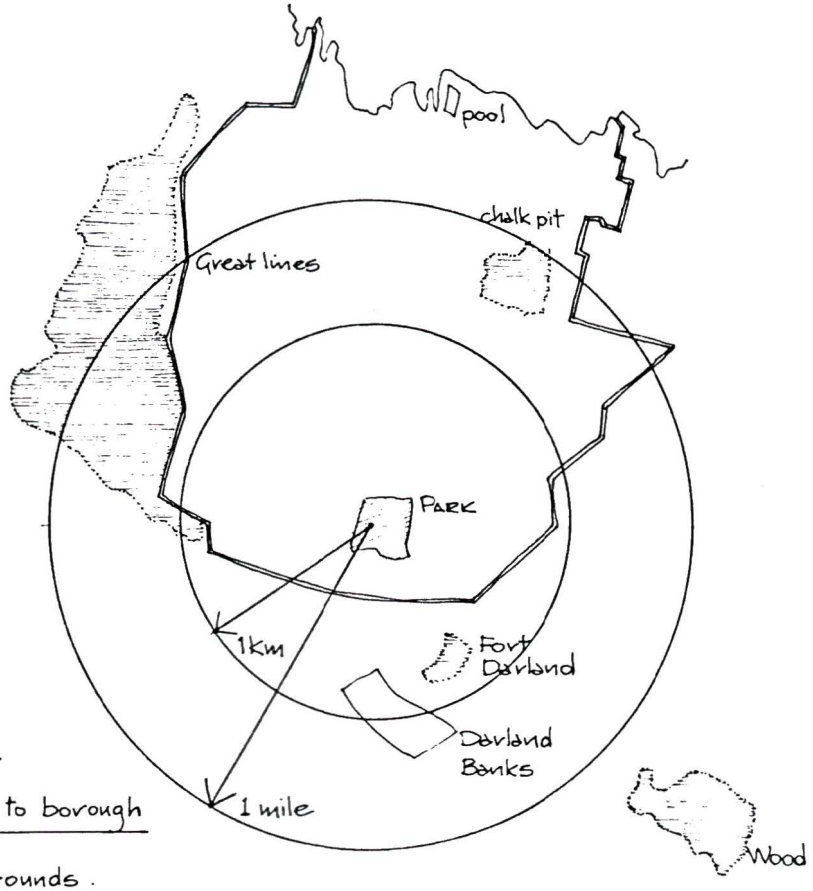

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FIG. B. GILLINGHAM, showing relationship of park to borough and outlying playgrounds.

-Reproduced from RIBA Journal, March 1973. (CMHC reprint, Ottawa).

> bandstand, it seemed as if all the town was there (Pinfold, 1973, p. 5).

After the second world war, the practice of setting aside a separate area within the park for children's play, gradually became entrenched in the planner's manuals.

2: The Municipal Playground and other playground types

The regularization of municipal playgrounds has been extensively investigated (Lady Allen, 1968; Rutledge, 1971; Ward, 1978). The comprehensive parks of the 1930s, described in Section 1, gradually gave way to the typical park of the 1950s, in which the various components became segregated and uniform. Nowhere was this uniformity more apparent than in the children's playground. It is evident that the play needs of children and youth have seldom been recognized in planning policies, and this is especially true in Canada. Knight (1980), for example, has carried out random surveys of Canadian municipalities which reveal that policy has not changed over the years. This lack of change becomes significant when considered in the light of other changes which have occurred during the last 25 years. For example, the moving of residential communities from urban centres into the suburbs has produced great increases in traffic volumes and a considerable reduction in public or open space.

The reduction in the availability of open space has also been partly responsible for the somewhat random locations of municipal playgrounds within neighbourhoods. Only where playgrounds are planned and designed as part of a comprehensive scheme is attention accorded to behavioural

requirements of the users. Examples of this type of environmental design may be found in Denmark and Sweden (Bengtsson, 1970). The facilities for play in the municipal playground have generally been referred to as equipment. The equipment provided in the municipal playground has changed little over the years and for three decades children have had the choice of putting up with, or ignoring, the stereotypical municipal playground. Since the mid 1960s, other types of playground have appeared, so that the municipal playground is now referred to as the traditional playground.

Within the North American context, there are three recognizable types of playground.

a) The Traditional Playground

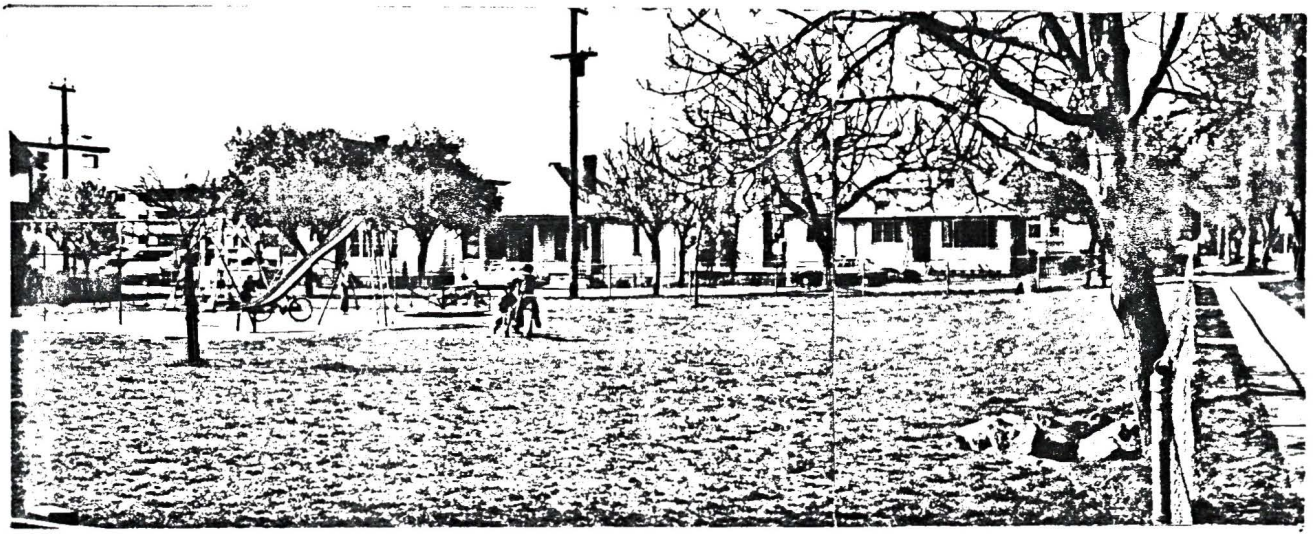
The standard model for many years, this type of playground usually incorporated the following equipment features: sets of swings, a small slide, some see-saws, a roundabout or rocker. Occasionally, sets of metal tubes were placed in the ground, for the development of large muscles. In some countries (notably England and Sweden), small sub-spaces were set aside for pre-school children. The main features in these areas were nearly always scaled down swing sets and a sandpit. Throughout the history of the traditional playground (it cannot be termed evolution, as it has not evolved), the equipment has been placed on asphalt or concrete. This is to ensure ease of maintenance for work-crews. It also provides maximum impact for falling children. A behavioural analysis of equipment used in traditional playgrounds and in adventure playgrounds is shown in Tables 2.1 and 2.2.

STANDARD/TRADITIONAL PLAYGROUND	ADVENTURE PLAYGROUND
Many pieces had only 'one use'	Pieces were manipulable and had many versatile uses.
Seemed to involve only gross-motor activity.	Seemed to stimulate self-directed play of all the children, especially those of toddler age. Actual developmental stage in play was not as important.
Stimulated mostly onlooking, solitary, parellel and associative play.	Stimulated much associative and cooperative-imaginative play.

TABLE 2.1. Analysis of Play Equipment . From: 'Innovation in Play Environments' Wilkinson 1980.

BEHAVIOUR	STANDARD PLAYGROUND	ADVENTURE PLAYGROUND
Problem-solving behaviour	Gross-motor problem solving.	Problem solving stemmed from gross-motor involvement and social interaction. Provided more 'real-life' situations.

TABLE 2.2. Play analysis using problem-solving behaviour . From: 'Innovation in Play Environments' Wilkinson 1980.



The use of asphalt is clearly shown in these photographs, (Victoria 1980).

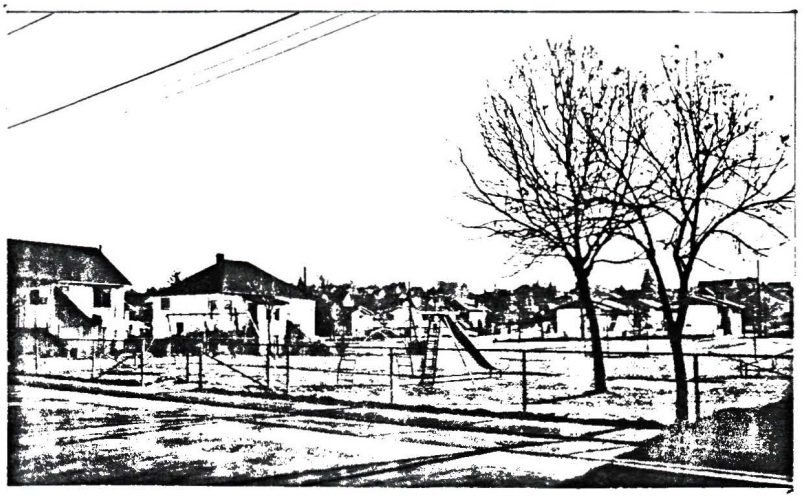


FIG. 2.3. THE TRADITIONAL OR MUNICIPAL PLAYGROUND

It has been pointed out (Caplan & Caplan, 1973; Ellis, 1973; Hart, 1980), that traditional playgrounds have never enjoyed much success. Yet they have been built in hundreds, without noticeable change for perhaps half a century. Many examples of these playgrounds can be found today in cities throughout North America. This is because civic authorities would rather pay work crews to maintain them, than adopt a different approach to the matter. An example of a typical traditional playground is illustrated in Figure 2.3.

b) The Creative Playground

This type of playground covers a much broader range than type a) and in North America it has become very comprehensive during a period of little more than a decade, that is since 1972.

The term creative is used mostly in North America to differentiate it from adventure playground types. Even so, much confusion surrounds the use of both terms. The adventure play concept has spread throughout England, Europe and Scandinavia, but for reasons which remain obscure the adventure playground has never been accepted in North America as a viable alternative. Instead, the traditional package is gradually being replaced by creative types.

Creative playgrounds use wooden or industrial plastic materials. The elements are usually pre-fabricated and the form is designed by the manufacturer. Initially, creative playgrounds were merely copies of traditional ones made with different materials. This situation has now changed and some manufacturers have engaged consultant designers and educational specialists in order to increase flexibility and comprehensiveness in

the product. In many cases the mass-produced generalistic approach has been superseded by a site-specific one. The producer-designer-client-user team is a major change in attitude and should be acknowledged by other interest groups. Even so, it remains essentially a static model. It cannot be considered as fully participatory as it is not manipulable by the children who use it. A creative play arrangement is illustrated in Figure 2.4.

c) The Adventure Playground

Largely a European phenomenon, the adventure playground was conceived as long ago as 1936 in Denmark. A local pioneer designer noticed that children were playing with loose materials which had been left on the playground site, instead of the fixed play equipment. It was not until the late 1940s however, that this 'discovery' was used. Alternatively known as a workyard (Moore, 1974), this type of playground has no pre-fabricated or permanently fixed components. Rather, it is an assemblage of loose parts which are utilized for the fabrication of various forms by the children themselves. The nature and extent of the fabrications are left to the ingenuity of the builders. The quintessential point of adventure playgrounds is that they should never be 'finished.' They should be as life is, always in process. Most of the playgrounds in Europe are supervised by a playleader who has the responsibility of over-seeing each day's progression of activities.

As each adventure playground develops according to the whims of the local user-group, no two playgrounds will be alike. In this respect alone they differ markedly from the traditional playground. In the

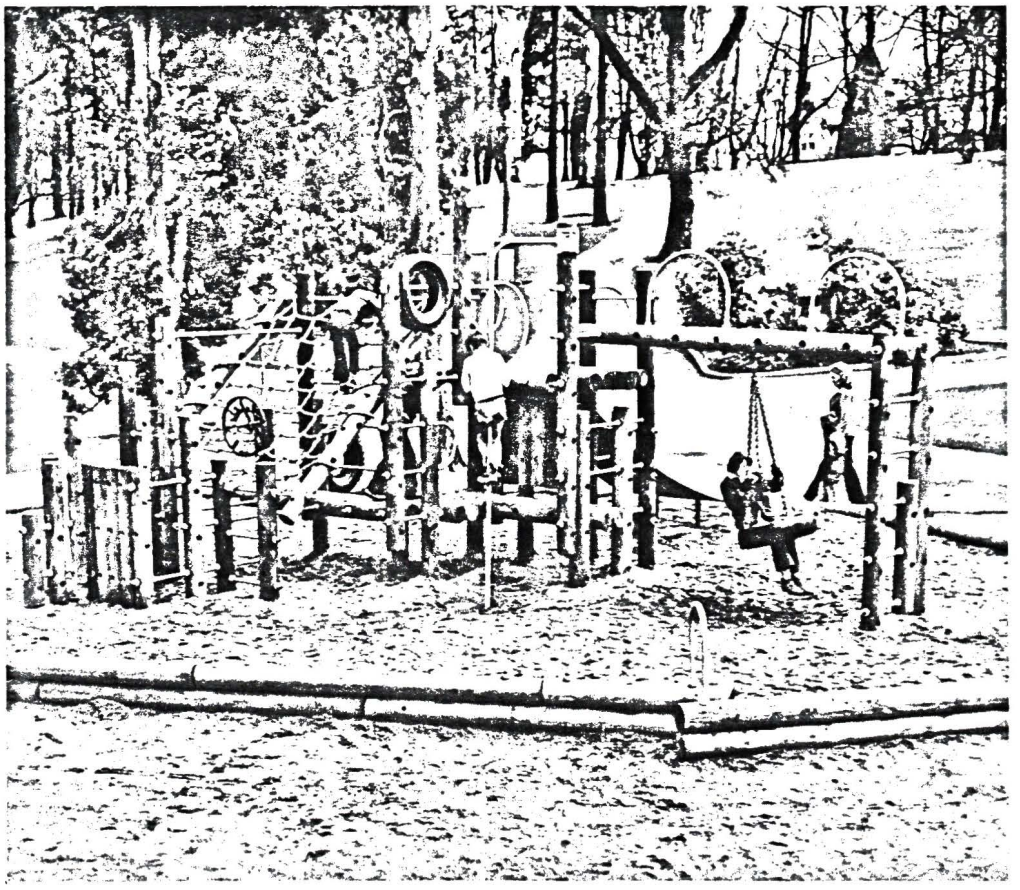


FIG. 2·4. A CREATIVE PLAY ARRANGEMENT.

components for this play setting are manufactured and installed by BIG TOYS of Canada Ltd.

supervised adventure playgrounds there is usually some inside space provided which serves various functions. For example:

One large playroom

Playleader's office

Rest rooms

A sick bay

Storage areas

The storage areas are used for storing creative junk for inside use (for example: paints, small tools, musical instruments, clothing, cardboard, clay and miscellaneous donations from the community). Outside, there should be additional huts for storing outside tools and equipment. When the workyard is established, there is a constant inflowing and outflowing of materials. Piles of sorted wood, planks and parts will be discernable. In some playgrounds, old motorcycles, boats and even stranger items have been donated. The use of water, either as a play element or as an element to play in has been recognized. Ponds or water courses are made use of in many of the recent playgrounds and especially in play environments for handicapped children (HAPA, 1978).

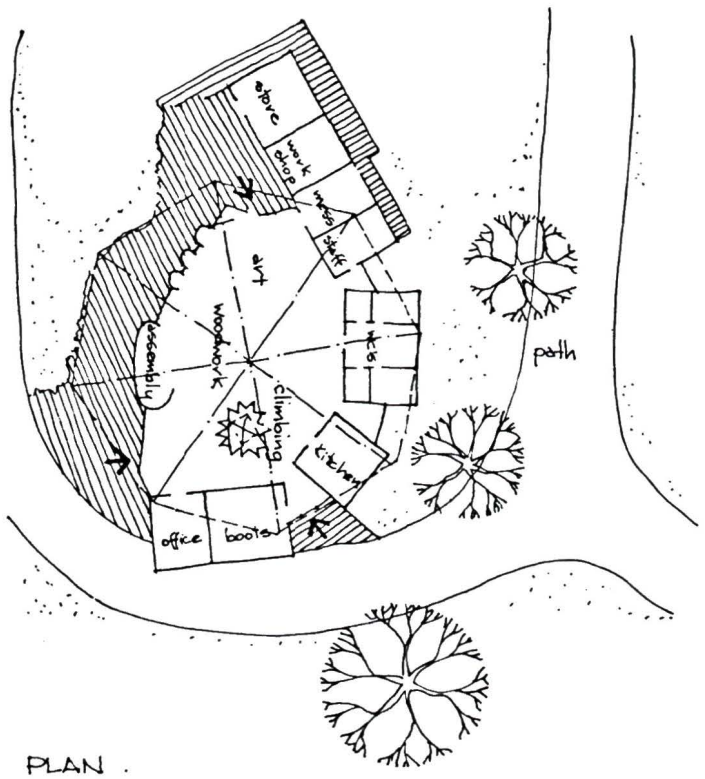
The adventure playground has emerged in response to attitudinal changes in society. The new attitudes espouse the view that children cannot successfully assume a positive role in their lives without attempting to act upon the environment in some way. "The only way a child can feel he has control over his environment is when he has the power to change it..." (Bentley and Freeman, 1972).

HAYWARD PLAYGROUND, ISLINGTON (U.K.)

A HAPA Project.

The Hayward playground was the second (after Chelsea) to be set up for handicapped children, in Greater London. The building itself has been designed as a play unit. It resembles a merry-go-round. The octagonal form recalls traditional park architecture.

The building is designed so that the children can climb about and use every part of it. There is a loft with direct access between the roof and the floor below, and from it a slide carries children down into the garden.



PLAN.

Reproduced from 'Adventure Playgrounds for Handicapped Children' H.A.P.A. London.

FIG. 2·5

3: Play-environments for handicapped children

The first public playground to be carried out for special needs children opened in Chelsea, England in 1969. A prototype in every way, it was initiated by Lady Allen of Hurtwood, who founded the Handicapped Adventure Playground Association (HAPA) at the same time.

The inspiration for the Chelsea playground originated from the Cheyne Holiday Club for Physically Handicapped Children. This institution was established to provide recreation and companionship during school holidays. A physiotherapist at the centre felt that the play and developmental needs of handicapped children could not be provided by the hospitals, special schools and clinics, where these children spent a large percentage of their time. Subsequently, a committee was set up, headed by Lady Allen, to investigate ways in which a play environment could be designed to provide special needs children with informal, exciting and challenging opportunities.

During the following three years, the project underwent the trauma which seems bound to accompany all innovative proposals. By the end of the 1960s decade however, the first HAPA playgound was in operation. Since this time HAPA has been responsible for opening four more London-based play environments for handicapped children. In addition to this achievement HAPA has had indirect involvement in the creation of other facilities throughout the British Isles, Europe, and North America. Figure 2.5 illustrates one of the early HAPA playgrounds.

The objectives that HAPA has set out, while including some general provisions, also include the following:

> ... to improve play facilities for the handicapped and their families.... Improved facilities mean not only setting up specially designed and equipped playgrounds for children and young people but carefully integrating them into the more competitive world outside the playground by including a number of activities with non-handicapped children (HAPA Journal, 1978, p. 2).

This proviso for integrative play has been operative since approximately 1978. Integration has occurred mostly with non-handicapped brothers and sisters. The integrative philosophy has been reiterated by HAPA and others (notably Moore, 1979). One of the workers at the Lady Allen playground has written:

> I would much prefer if the 'handicapped' playgrounds were called 'special' playgrounds. They should integrate as far as is possible without compromising their most important function as sheltered play spaces for those children who require special care and attention....
>
> It is, I believe, important for both the 'ordinary' and 'handicapped' adventure playgrounds to become as open and integrated as is possible. Both should provide children with the opportunity to play adventurously, imaginatively and creatively in an unstructured and non-competitive atmosphere (Spears, HAPA, 1981, p.12).

The approach to design for integrative settings is still quite new. Attention has focussed upon design of equipment for mobility as well as group activity projects for stimulation. Examples are the therapeutic tricycles illustrated in Figures 2.6 and 2.7, and games or projects which are initiated by play leaders (especially in British adventure playgrounds). For the present, the only playground to be built in an integrative manner is the Playground for ALL children in New York, which is still incomplete.

It should be emphasized that adventure playgrounds remain almost non-existent in the United States or Canada. But the term is sometimes used as a descriptor for the creative playground and this has led to some

The large Hayes tricycle is very stable and strong and popular with the children

FIG. 2·6.

Two types of therapeutic tricycle.

The Thistle tricycle is designed to be operated by hand and is a valuable piece of equipment

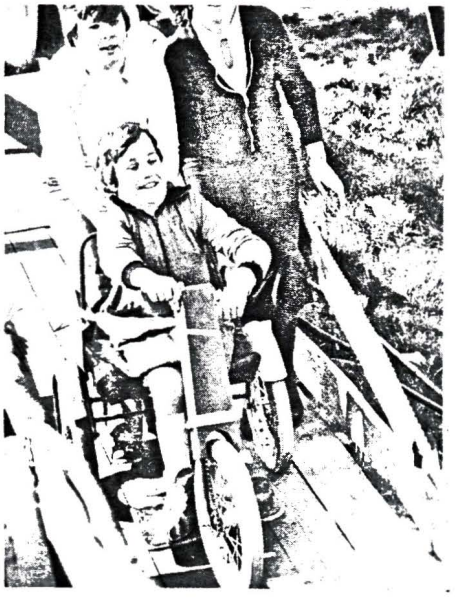


FIG. 2·7.

Photographs from HAPA (1978).

confusion. The chief difference between the two is that the creative playground is fixed, pre-designed or pre-arranged. It is set up as a finished product and remains that way, subject to maintenance. Conversely, the adventure playground develops according to manipulation by its users. It is a place where children may participate in environmental knowing through play.

Hart (1979) and Sandhu (1976) have identified culture as a significant variable to be considered in the provision of play environments for children, so that different attitudes in Europe and North America may be held at least partly responsible for differences in play environments. In addition, others (Lady Allen, 1968; Hutchison, 1979) have noted the paternalistic attitude which prevails in North America together with a value system which is disproportionately based on competition and achievement. Finally, there exists an apparent gap of communication (and hence understanding) between children and formal adult society. The gap has been remarkably constant over a long period of time and may be partly attributable to authorities and decision makers who, traditionally, lack an ability to develop much interest in innovative ideas. It is equally difficult for authorities to act on behalf of a segment of society which does not vote or pay taxes.

Reactions to the adventure playground movement in Europe have been mostly positive. However, the creation of handicapped adventure play environments has resulted in the appearance of a new type of caretaker, the play leader. In effect, the play leaders have been indirectly responsible for demonstrating that all children need the experience of

play and social interaction in order to progress as individuals. The job description for a play leader, as outlined by HAPA,is quite formidable. He or she must be a person whose

> ... identity must be quickly recognised by visiting children. ... must be an experienced capable person, with a good working knowledge of different handicaps... must be able to cope in an emergency with fits, faints, asthmatic attacks, temper tantrums, urine bags, calipers, prostheses, hearing aids, bumps and bruises; also with burst pipes, electrical fuses, fallen branches, punctures, floods and fires and with visiting school or group personnel, committee members, interested visitors, local authority officers and voluntary helpers... (HAPA, 1978).

The HAPA organization now has a comprehensive staffing component which provides an adventure play network throughout the British Isles. Figure 2.8 demonstrates the utility of the system. There are similar organizations in European and Scandinavian countries, such as Denmark, Sweden and Holland. Additionally, the organizations in most of these countries are connected with the International Playground Association (IPA)[1] who are responsible for setting up a World Congress every three or four years. The latest of these meetings was in Yugoslavia in 1984. On this occasion countries from Eastern Europe and South America sent representatives, as well as those from the United States and Canada.

It has been demonstrated that municipal playgrounds were instigated because of functional and maintenance criteria. Creative types of play environment are an improvement on traditional settings, but the planning and designing of these playgrounds is seldom commensurate with user-requirements. A paucity of attention has been accorded to children's behavioural needs, and this is especially so in the case of handicapped

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[1] IPA is also known as: International Association for the Child's Right to play.

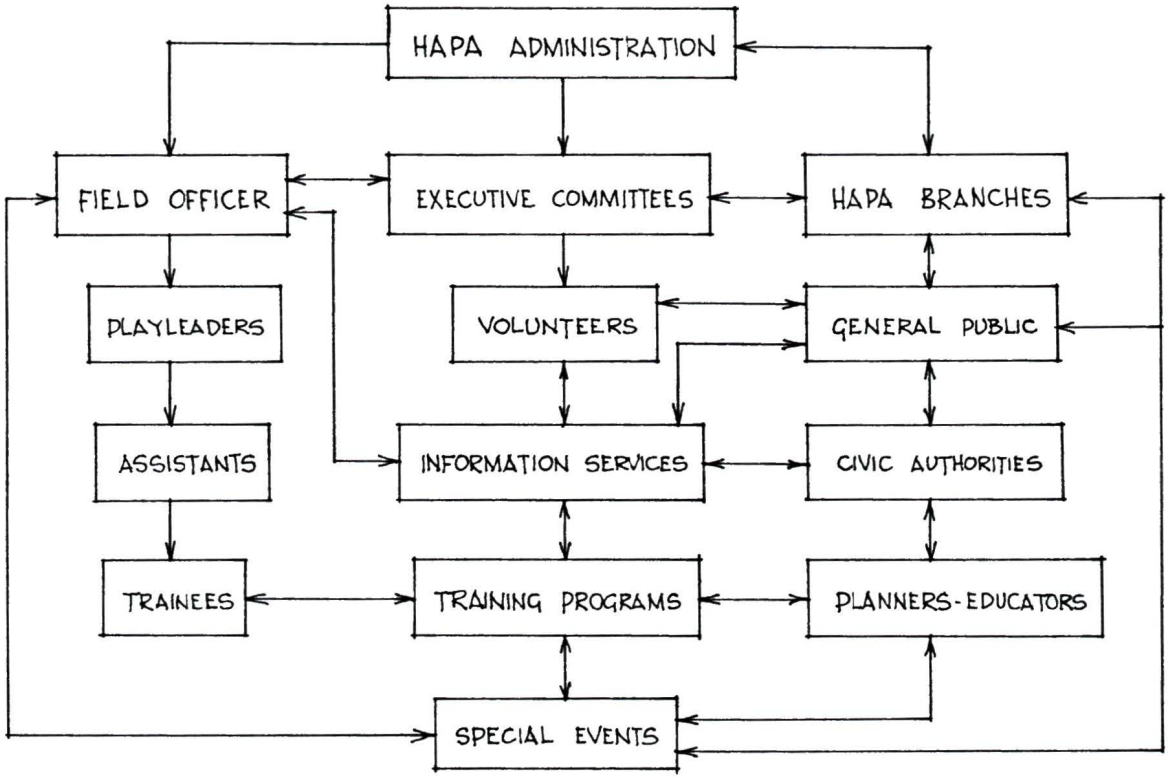

FIG. 2·8 THE HAPA ORGANISATION AND NETWORKING SYSTEM

children.

While in the European context, the adventure play movement has expanded enormously and now includes the vigorous handicapped play groups under HAPA, in the North American context this is certainly not the case. Perhaps it is partly due to this background that the author has experienced so many constraints in endeavoring to establish an integrative play-learning centre. These constraints and the development of the play-learning concept are explained in Chapter 4. Chapter 3 presents a review of literature. The latter investigates the child's place in society, how this relates to participation in the urban environment and hence the need for children's play environments. Sections 5 and 6 are specifically concerned with the design of play environments for normal and handicapped children.

Chapter 3

Review of Literature

1: The Child in the City

It is pertinent to investigate the relationship between the child and the urban environment, because the constant changes which occur in the urban infrastructure should mean that planners and designers adopt new approaches to environmental design. In this respect, Ward (1978) has provided such an overview. The Child in the City describes how children live, develop, identify with and play in cities. The cities which have been investigated include those in England, Europe, North America, South America and Africa. Ward has also shown how the integral networks of previous decades, between home, school, neighbourhood, friends, street, parks and workplaces, has changed dramatically in recent years. He obviously favours decentralization and a return to the homogeneous urban villages of the 1930s, when a child was better off in terms of "... always having something to do, something to engage him in the experience of living" (Ward, 1978, p.19).

Ward has always maintained that cities should be planned with children as participatory citizens. In fact, playgrounds should not be necessary in an urban environment which is designed with the needs of children as an element in pre-design programming. Unfortunately, this rarely happens as children have little or no bargaining power and are not able to successfully articulate their preferences.

Perhaps the key issue which Ward raises is the one of the use of the street. He emphasises that the games and pastimes which were carried

on in the streets of London, Paris, and New York a few decades ago were possible mainly because of the nature of the built environment. Essentially, the homogeneity of inner city neighbourhoods, together with accompanying house and street plans were sympathetic to the play needs of the children living there. It is now acknowledged (Newman, 1973) that these former urban habitats were able to sustain behavioural interaction in a way that high-rise apartment blocks do not. After the excesses of urban renewal in England and North America during the mid 1960s, many family and children-oriented participation programmes emerged in the cities and towns of these countries. Some of these programmes have been documented in books and magazines, and are, in part, relevant to this study. The reason is that due to changes in societal attitudes and expectations, behavioural research has focused more on the child himself, rather than on activities. The work of Hart (1978, 1980), relies heavily on this type of experiential approach to research. Some of the recent work in children's participation programmes is outlined briefly in Section 2.

2: Children's Participation Programmes

One of the most successful endeavors, for children and adults, has been the establishment of urban studies centres (USC's). There are now USC's in most of the major cities of England, and similar centres in other European and Scandinavian countries. The emphasis is on urban-environmental education, although each centre has developed individual programmes which relate to the specificity of local requirements. Most U.S.C.'s operate as a medium through which the information about the

environment may flow between the school, the local authorities and the local community. It can also become a focus for public consultation in planning and in government activities.

The Childhood City Quarterly, which is published at the City University of New York and Streetwork,[1] which is published by the Town and Country Planning Association in London are both periodicals which promote urban-environmental education and children-participation projects. Some of these projects which have received international recognition have been reported in both publications. (A list of CCQ topics is included in the Appendix.) The work of Streetwork in England has been directly responsible for the emergence of Liaison officers who are now established as part of certain planning departments' personnel. These people promote and implement urban-educational projects in schools and colleges. On occasion they have become directly involved in community conflicts and have become factors in decision making in local issues. (As in, for example, an attempt by the Greater London Council to tear down some houses, a swimming pool and baths in South London, which was eventually revoked. The plan was also to remove a small enclosed play-park.) Figure 3.1 illustrates the development of interaction between planning and education authorities. It is clear that communication was not possible until some decentralization of decision making occurred.

Another program which has become part of the international children-participation network, is the Child in the City (Toronto) project. The

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[1]Formerly Bulletin of Environmental Education.

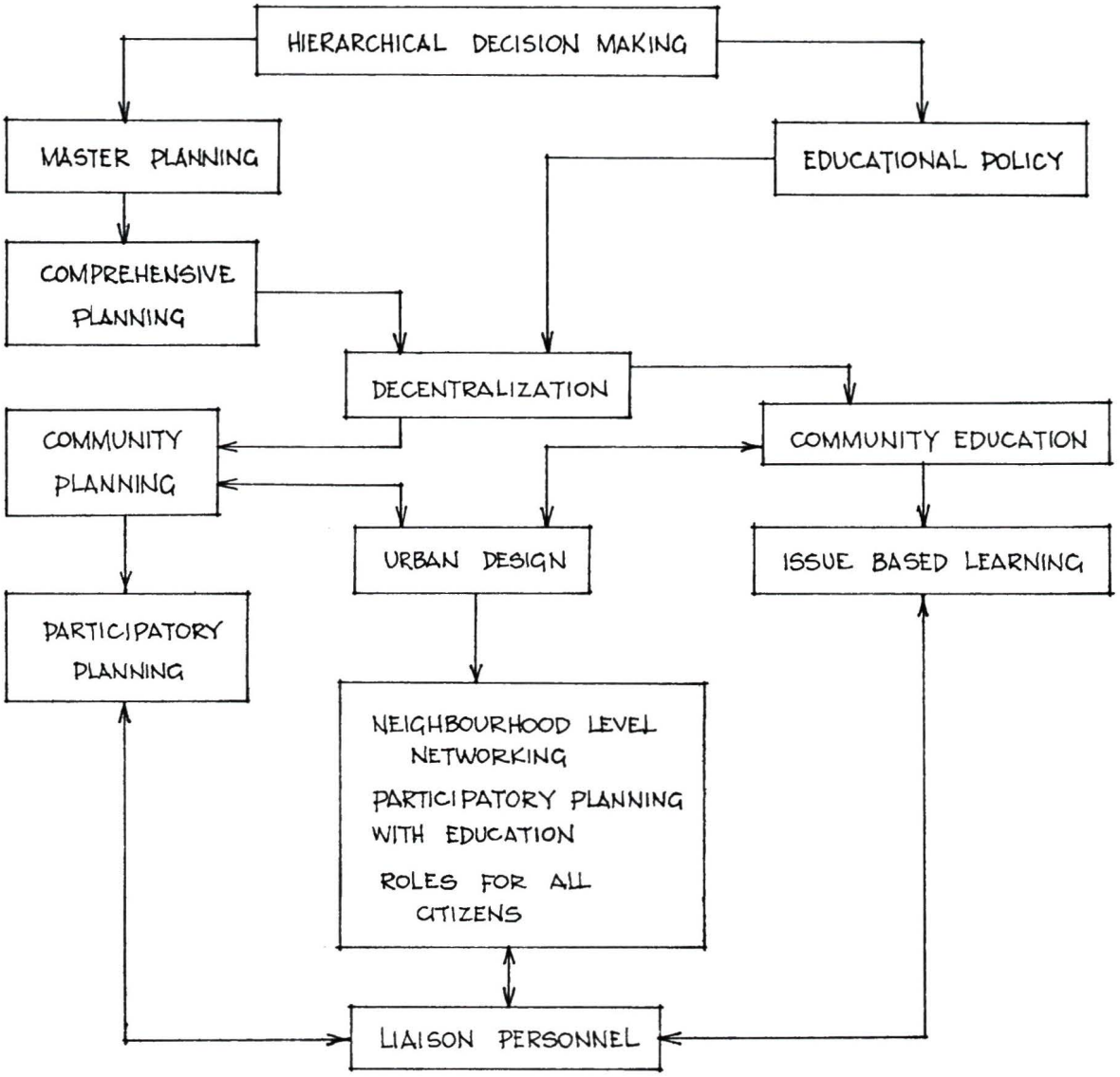


FIG. 3·1. THE DEVELOPMENT OF INTERACTION BETWEEN PLANNING AND EDUCATION

outcome of part of this continuing eponymous program has been published in two volumes (Ed. Michelson, 1979). The material represents "... the thinking of a number of leading experts on a variety of topics related to the impact of contemporary urban life on children." The Toronto program has many links with other organizations and since 1978 has co-ordinated much of its material with other events in the international calendar. These are: The Child in the World of Tomorrow symposium, 1978, Athens; The International symposium entitled Managing Urban Space in the Interests of Children, 1979, Toronto; Canada Man and the Biosphere programme; part of UNESCO International Year of the Child, 1979. Much of the work which continues in Europe, North America and elsewhere, in children-environment-participation is connected to Hart's (1979) seminal study of children's relationship to space and place, outlined in Section 3.

3: Place Experience

The work of Hart (1979), entitled Children's Experience of Place, has been considered a practical application of Cobb's (1969) philosophy and Barker's (1968) ecological psychology model. Most importantly however, it is an ethnographic study. This means that the approach is one where the bulk of knowledge is contained (Hart's term) by the interviewees, and not the interviewers. Hence, "... the status relationship is... the inverse of most social science studies."

The main body of research is divided into four categories:

spatial activity;

knowledge of places (and their spatial relationships);

place feelings and values;

use of places.

In connection with each of these categories, various methodologies are employed. Hart discovered, during his pilot studies, that a quantitative approach to the field of enquiry would not produce anything that was not already known about his subjects. He explains why a quantitative approach to a study such as his could not work and why a phenomenological (or experiential) approach was necessary. Briefly, much of the material is necessarily the result of spontaneous, impromptu occurrences. Hence most of the research and presentations were based on information from a combination of direct observation and ethnographic interviews.

As a geographer, Hart is genuinely concerned with landscape. His findings regarding children's orientation in the spatial sense are of obvious importance to environmental psychologists and designers. In particular, the material concerned with use of places together with place values demonstrates significant differences in perception between adults and children. For example:

> ... children seem to find as much enjoyment in getting to places as they do in being there. In fact, there is often no 'there,' they are just exploring. These are qualities which are very easy for adults to overlook. Most of us usually think of routes in purely functional terms as a means to ends rather than as the ends in themselves (p.73).

Hart's observations on children's routes to and from places is connected to his later (1980, 1982) work on the spatial range of children and how this phenomenon relates to age, sex, ethnicity and culture as variables. The urge to explore and discover develops environmental competence within the child, but this may be tempered by such considerations as

the sex of the child or a disabling characteristic. These observations were taken into consideration and discussed with the GRPC play-learning centre planning committee during the programming stages of the design.

The next three sections deal with the literature which is concerned with the design of play environments for children, including those with special needs.

4: Design for Play

It has already been shown that designing new or innovative facilities usually starts with an appraisal of the 'state of the art,' followed by various types of research before a model can be formulated. In most cases, and especially where human subjects are involved, some type of observational research is necessary. The problem is that the research stages are usually carried out by academics whereas design and implementation usually is not. Because of this situation, some continuity in progress is lost. The work of Dattner (1969, 1974) provides a bridge between the two. Dattner (an architect and environmental designer), had already begun to design play environments for handicapped children as early as 1969. This was also the same year in which the first adventure playground for handicapped children was completed. It was several years before academia began the research which pointed the way towards the provision of such facilities.

The early design work of Richard Dattner is incorporated in Design for Play (1969). This publication demonstrates Dattner's range of experience in the design of child-related architecture. His playgrounds use a variety of shapes and forms, many of them in concrete. This has

tended to make the play environments a little hard, but it has also meant longevity. The last consideration is especially relevant in, for example, the playground developed in New York's Central Park. Here Dattner has used a variety of climbable mounds with linked pathways and a variety of inset play nodes. As with other projects, however, the most important feature is the use of water (Figure 3.2).

The content in Design for Play is still of importance to design specialists and other professionals. In 1970 Dattner's design for a therapeutic playground was implemented. A sketch of this playground is reproduced in Figure 3.3. It is quite remarkable that the book includes a section on designing for handicapped children, as, in 1970, such facilities were almost unknown. Prior to the publication of his book, Dattner had been carrying out research on handicapped children at play. He stresses his own discovery: that the play of handicapped children is not very different than that of 'normal' children. Since the end of the 1960s, this elemental fact has been confirmed by others in the field. This single factor is an important consideration and source of support for those who seek to promote an integrative approach to the design of environments for children. Dattner states:

> ... to the extent of their abilities, their ... (handicapped children) ... play follows the same patterns as that of normal children; it serves the same function of expanding their experience and understanding of the world, and it affords them the same potential for enjoyment and expression (p.109).

In addition to being a forerunner in the design and provision of environments for handicapped children Dattner would appear to be one of the

Demonstrating the elemental use of water.

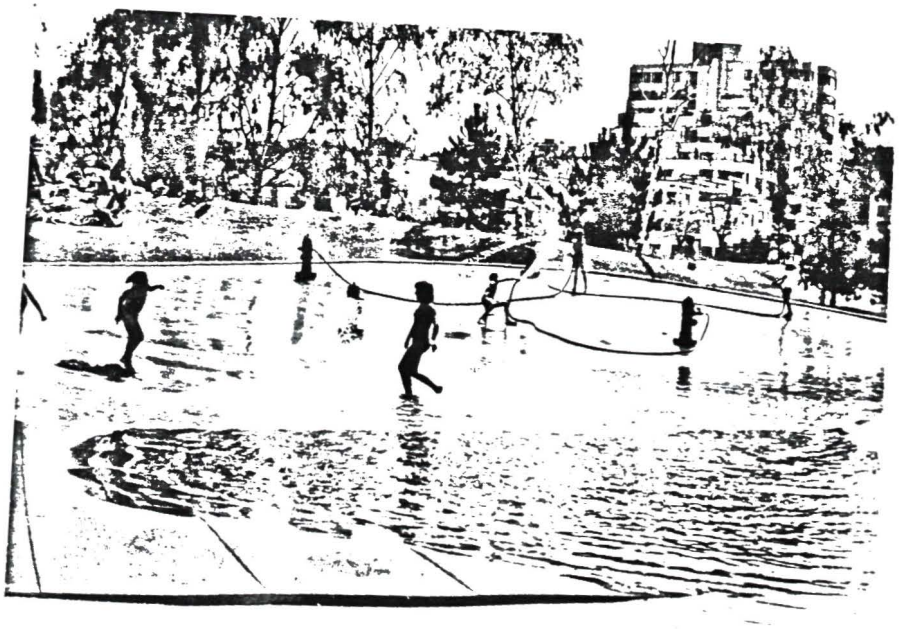
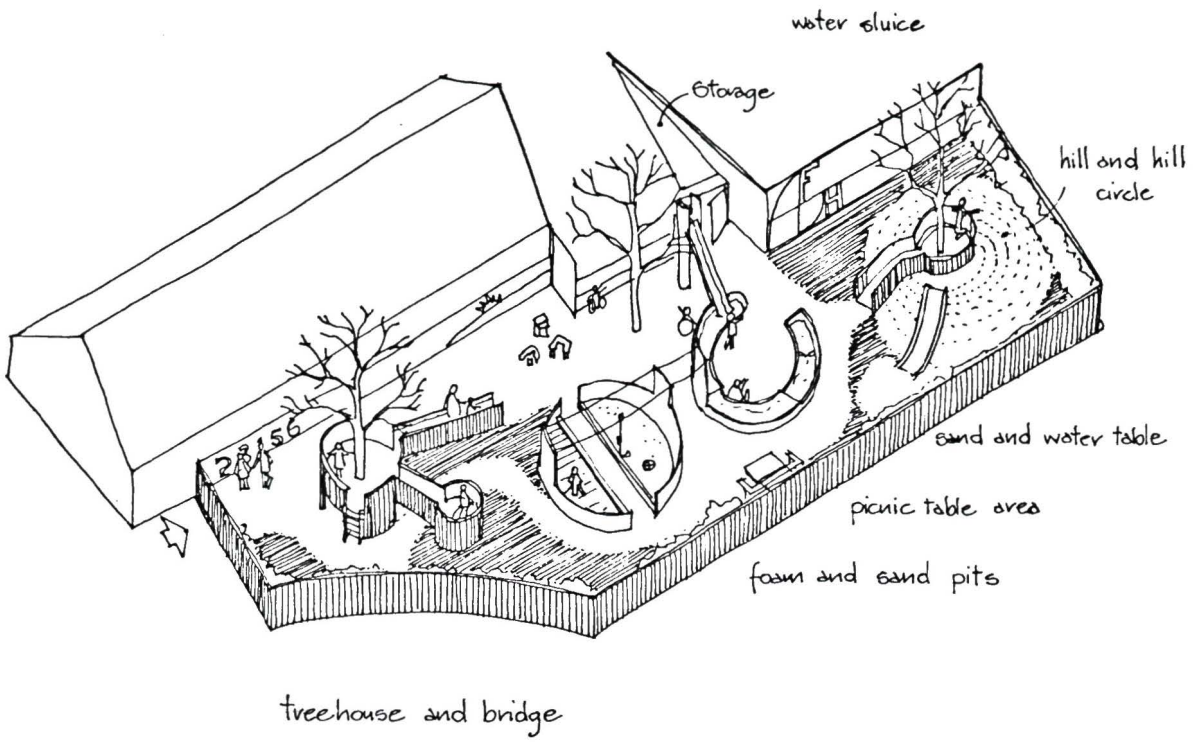


FIG. 3·2.



The Jesse Stanton Developmental Playground. Designed by Richard Dattner.

This playground, designed in 1969 for the New York university medical centre, was probably the first Therapeutic environment specifically for disabled children. It is still one of the most frequently referred to centres.

FIG. 3·3.

very few designers who has sought to accomplish changes in the physical environment in order that people become the determining factor in design. What is more, such designing gives children opportunities to participate more in the everyday environment. This is quite an achievement, both in a social sense and a developmental one. It is unfortunate that there are relatively few designers who are willing to undertake behavioural research and planning of this type.

Dattner has been instrumental in the provision of schemes such as:

Play in buildings
Play in airports
Play in bus stations
Play in hospitals
Play in shopping centres

The implementation of difficult projects such as these not only requires a great deat of programming, planning and co-ordination, but in many cases, a shift in values and societal expectations is necessary. For this reason such projects often remain at the theoretical stage.

5: Environmental design for handicapped children

In recent years, planning and design for play environments has begun to address the needs of handicapped children. Although most of this work has concentrated on handicapped or disabled children as a group, the move toward an integrated solution is nevertheless apparent. A design team working at the Department of Architecture and Environmental Studies at the University of Wisconsin, Milwaukee, has produced some important design criteria which relates to play environments for handicapped children. Specifically, a report and design guide (Moore, Cohen, Oertel and Van Ryzin, 1979) provides an encapsulated account of several

Bayes (1967)	Lady Allen (1968)	Bednar & Haviland (1969)	Gordon (1972)	Shaw (1980)
sociopetal planning	adventure playgrounds	space-time identity	natural environment	sense of place
avoidance of corridors	variety of sensory materials	avoiding ambiguity	clear delineation of areas	unified play space
transition	variety of perceptual-motor experiences	articulation	different degrees of difficulty	variety of spaces
avoidance of ambiguity		transition	quiet nooks	key activity places and paths
scale and character		decisions and alternatives		3-dimensional juxtaposition
variety of group sizes		consistency		non-objective space
flexibility		child scale		variety of materials
pattern and visual stimuli		sociopetal		loose parts
stimulating to cool colours		privacy		
staff areas		territoriality		
child participation		usability		
		ordered movement systems		
		character		

DESIGN CONCEPTS FOR EXCEPTIONAL CHILDREN : KEY-WORD TABLOID

reproduced from 'Designing Environments for Handicapped Children' Gary T. Moore et al, 1979.

FIG. 3.4

years' work in Moore's department. In addition, it is one of very few sources within this field which has managed to combine a number of salient features in order to produce a comprehensive approach to the subject. Moore is aware of the need for attitudinal changes together with concentration on user-needs.

The report is divided into three sections:

1) Developmental disabilities and the environment

2) Design guide:- developmental goals and design principles

3) Case study

In the first section, Moore has classified disabilities under the three headings of Physical disabilities; Perceptual-intellectual disabilities; Social-emotional disabilities. Nevertheless, there are problems associated with classification of this sort (Hutchison, 1979). The inference is that all children that are, for example, categorized by physical handicap under one label, are the same in all other respects. Also, labelling terms and categories are usually attributable to the dominant cultural group and "... do not represent absolute conditions" (Moore, p. 13).

Moore has investigated the work of others involved in research and design of play and therapeutic environments. This includes the work of Bayes (1967) and Shaw (1980) amongst others. Bayes, for example, suggested that the environment can have a direct stimulus or therapeutic effect on mentally retarded children. In short, "... space acts as a therapeutic agent" (in Moore et al., p. 17). This information has been condensed by Moore into a useful Keyword tabloid, which is shown in Figure 3.4. The various concepts, thus summarized, enabled Moore to

produce a set of design principles which he subsequently utilized in his case study. The use of design principles and development goals, in a matrix form, is set out in Chapter 7 and 8.

Moore, borrowing from Werner (1947), a developmental psychologist, perceives the child as an integrated being. The three main areas are moving, thinking and feeling. The point is, "... that the development of action patterns in a very young child precedes and leads to the development of perceptual abilities and the higher mental processes (thought, reflection, problem solving, symbolization) in an older child" (Moore et al, 1979, p. 43). This concept, which is directly related to human development, was a prime consideration in the method used by Moore to identify design principles. This aspect of what is essentially a pre-design-programming stage of a project was also utilized by the author together with the GRPC play-learning centre planning committee. This is developed further in the chapters concerned with methodology and design priorities.

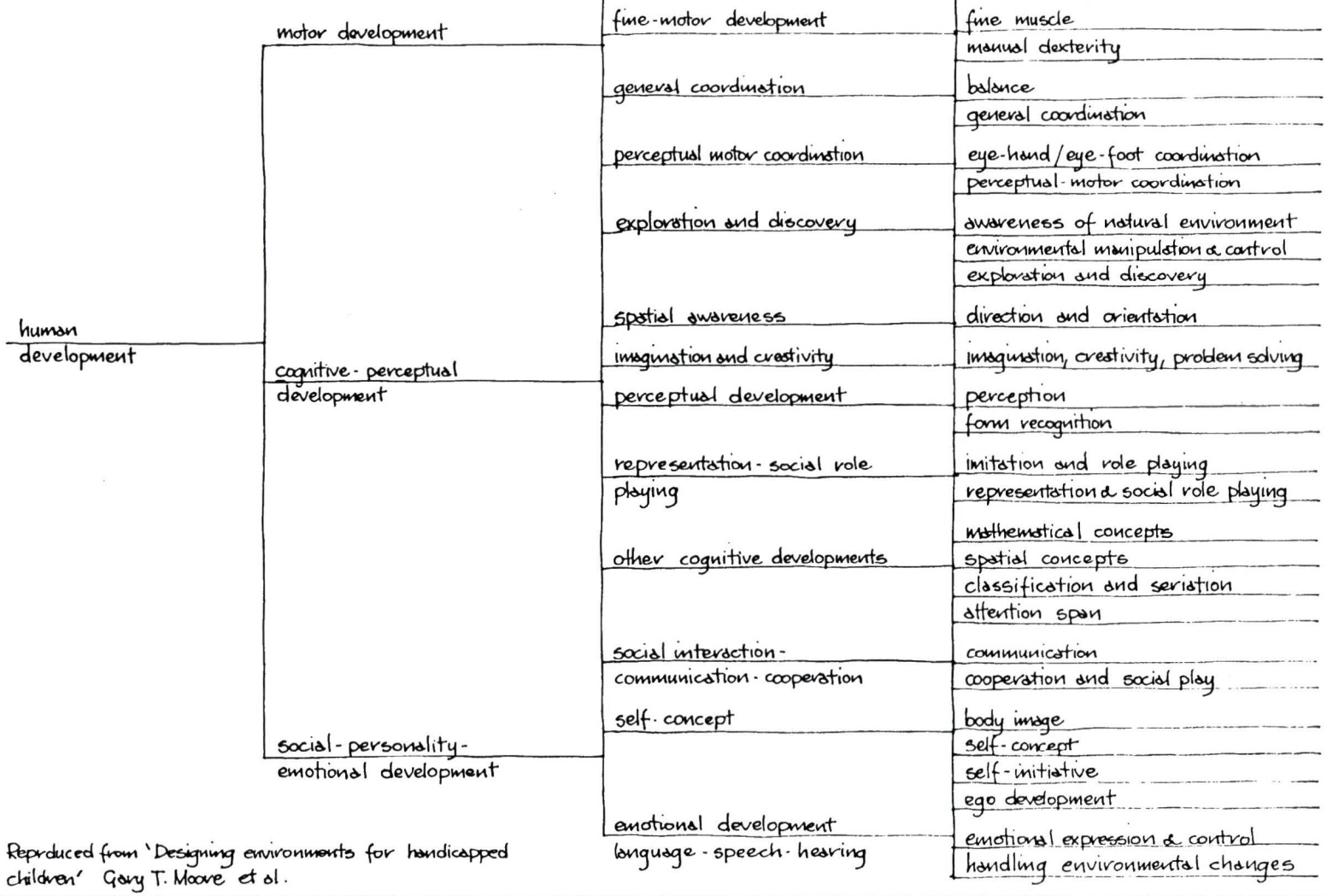
Moore was able to develop a list of developmental goals using a hierarchical tree-diagram, which is shown in Figure 3.5. The three aspects of child development have literally been broken down (or collapsed) into approximately 30 goals. It is of course, very important to choose the most relevant goals in order to obtain design priorities (Chapter 7).

The final section of Moore's design is a case study. It concerns the play-environment for handicapped children at the St. Francis children's centre in Milwaukee. The project is one of a very few available to be

HIERARCHY OF MAIN AREAS OF CHILD DEVELOPMENT

AND MAJOR DEVELOPMENTAL GOALS

FIG. 3·5



Reproduced from 'Designing environments for handicapped children' Gary T. Moore et al.

compared with the play-learning centre at GRPC, as will become more evident in the following chapters. Meanwhile it will be sufficient to say that both centres were already advanced in their therapy programs, but, as Moore says, the (St. Francis centre) wished to

> ... complement the indoor, highly structured program with an outdoor, less-structured series of activity possibilities... children's spontaneous play activities were to be anticipated and appropriate environments designed (p. 78).

The St. Francis project was divided into three design stages:

1) Preliminary, in which ideas were represented as site-independent.
2) Schematic, in which information for design was adjusted or changed, in order to be site-specific.
3) Final design, the detailed design-solution.

With regard to number one, even though site-independent concepts are abstract until related to a site, a good designer will often start work with a site-investigation (if the location is already known). This is in order to become cognizant of any constraints, actual or potential, which would affect the project. Such constraints might include, for example: topographical features such as steep slopes or marshy ground; boundaries; dense planting; potential problems of circulation. The schematic presentation will be changed from preliminary concepts according to input from the client or users. Adjustments may also be necessary due to a variety of dimensional restrictions. The sequence for the development of the GRPC project is described in Chapters 8 and 9.

The literature reviewed in this instance has dealt with the history of children's playgrounds and the three main types which have evolved up

to the present time. Some recent publications in respect of play environments for handicapped children have also been analysed. Thus far, none of the literature reviewed has dealt with the integrative approach to design for such facilities. The only known work in this category is described in Section 6.

6: Environments for ALL children

In 1976, the United States Department of Housing and Urban Development (HUD), initiated a program for a large regional playground for all children. This was the first time that an integrative design approach to play environments was made. During the next two years, each phase of the program, up to the final design stage, was documented. A three part resource book was the outcome of this documentation. All three parts are entitled A Playground for ALL Children (HUD, 1976-1978), comprising: Volume 1 - User Groups and Site Selection; Volume 2 - Design Competition Program; Volume 3 - Resource Book.

In Volume 1, the three main objectives to be met were set out. Through the subsequent years of planning, research, design and co-ordination of information these main objectives remained constant:

1) Creation of a public playground that may be enjoyed by children in the 3 to 11 year age group, regardless of disability.

2) Provision of an integrated play experience for disabled and able-bodied children.

3) Development of prototypical playground features that may be used in neighbourhood playgrounds throughout the city.

The two features of Volume 1 are important to planners, designers,

and childcare professionals. Firstly, site selection was carried out by the City of New York Planning Department, who were responsible for the selection of a site with optimum accessibility. The regional nature of the overall project is demonstrated by the transportation-population study (Figure 3.6). Each potential site was analysed by location, description and evaluation, under headings as shown in Table 3.1.

Although it was not necessary to employ site analysis techniques for the GRPC project, the methodology has since been utilized on other projects (outlined in Chapter 10). Moreover, a proper investigation of a site to be developed is critical, no matter what the proposed development is for. A sensitive use of most of the natural or existing features of a site might make a substantial difference in how the development will function. The second feature of Volume 1, a summary of findings on user-groups, was of more immediate use to the author.

In any urban agglomeration, there will be a relatively constant percentage of the overall populace who may be labelled as 'special needs' (Lady Allen, 1968; G.T. Moore, 1979). It has been estimated that the percentage of children in the United States, at any point in time, with handicapping conditions that require special educational programs would be between 7.5 and 8.5 percent of such a population (Melcher, 1977, cited in Moore, 1979, p. 9). Hence, if this percentage is applied to the 10-mile radius of Flushing Meadows Park, the implications are that there will be more than 337,500 children with recognizable handicapping conditions (see Figure 3.6).

The number of potential users can of course be broken down into

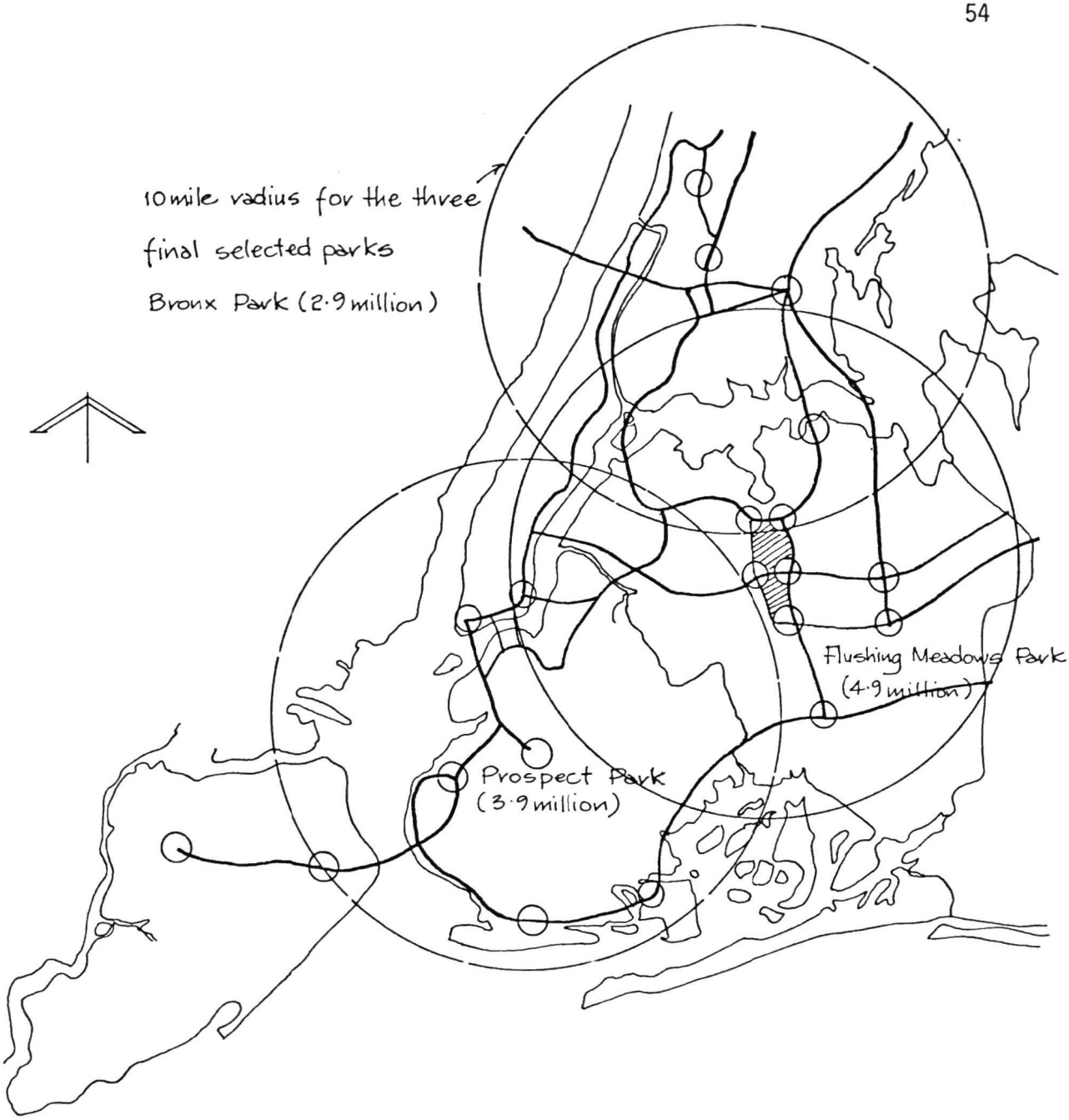


FIG. 3·6. Transportation - Population study for the Playground for ALL Children in New York

Table 3.1

Part of Site Analysis for 'Playground for All Children' (New York) Amended and Abridged (see Book 1 - User groups and site selection, HUD 1976)

Site Analysis	Description	Evaluation
LOCATION 1 → ↓	Near geographic centre of Brookly, Queens, Manhattan and the Bronx	Very good. Centrally located, except in relation to Staten Island
Accessibility Subway Bus Automobile		
Draw (Catchment Area)	Regional park and recreation areas	Excellent. Has wide appeal and attracts people from all boroughs
Area Character	Regional park. Neutral character	Excellent... Open... Accessible...
Size-shape	4.27 Acres, irregular	Very good
Topography		... favourable....
Condition	Open natural area. Some existing small trees	
Compatibility with surroundings	Functionally similar to existing facilities	
Other info.		
LOCATION 2 → ↓		

sub-groups. For the New York project, agencies serving the handicapped were asked to suggest which group would be the largest potential user. The pre-design program classified the user groups into five categories, and to these the sixth category of able-bodied child was added. The six groups are set out, together with general ideas concerning appropropriate settings:

No. 1 Able-Bodied Children. Younger children will more easily integrate with other special needs groups, as they are tolerant and free of value judgements. Facilities such as gardening places all users on an equal basis.

No. 2 Children with Neuromuscular and Orthopaedic Handicaps. Including Cerebral Pasly, Spina Bifida, Muscular Dystrophy and amputees. Accessibility for children using wheelchairs or on crutches. Equipment details, safety, rest places (shade etc.).

No. 3 Children with Mental Retardation. Probably ranging from mildly retarded to severely retarded. Also brain injured children. Encouragement of co-ordinating activities and motor skills. Balancing, soft-play facilities, and natural areas.

No. 4 Children with Visual and Hearing Impairments. Facilities for visually impaired should encourage (or emphasize) the use of other senses. Visual information for the hard of hearing should replace all aural intake. Safety, use of textural facilities or features, guide system and visual cues for the deaf.

No. 5 Children with Arthritis. Including the disease of rheumatoid arthritis. Non-competitive arrangements. Paced alternatives and Passive areas.

No. 6 Children with Heart disease, Diabetes, Epilepsy. Including rheumatic fever, various forms of the epileptic condition and haemophilia. Modification of 'normal' play activities, safety, soft-areas, retreat nodes.

Most of the users can participate in water play and sand play. These are considered to be the two basic elements of traditional activity for young children. The user groups in the thesis refer to the children at the G.R. Pearkes Centre (GRPC) in Victoria, and at the Bob Berwick Memorial Centre (BBMC) in Vancouver. For the research program, user-group criteria was elicited from the staff at GRPC (which did correlate very well with the above information).

Volume 3 of HUD documents the results of the design competition for the project in New York. All of the competitors were given a comprehensive design kit which led to the choosing of four concept designs as finalists. The design kit (or brief) was the result of a year of planning and research by the City of New York Planning Department. This pre-design programming included the studies already described, plus an exhaustive enquiry into existing facilities for the handicapped. The evaluation component included the work of the Handicapped Adventure Playground Association (HAPA) in London, examples in Sweden and others in the U.S.A., including Dattner's therapeutic model.

At the outset, HUD organized a national survey in order to discover the current 'state of the art,' in respect of environments for handicapped children. It was soon apparent that examples of such specially designed play environments were extremely limited. The following

illustrates the nature of the findings:

> The typical play facility for handicapped children has been built within an institutional setting, generally, a school, residential institution, or other centre serving children with a specific disability or syndrome. Thus the play facilities are not only segregated by virtue of the fact that the general public does not use them, but they are additionally segregated by the type of disability (HUD, Vol. 3, p. 17).

This valuable survey and its results seemed to imply that success with the existing, largely therapeutic environments, was more attributable to the staff employed and their efforts, rather than to any inherent design qualities. Hence:

> The implications for playground designers lie in the development of facilities which permit and encourage the development of skills, so that children at all levels may succeed, learn from their successful experiences, and be encouraged and challenged further (p. 18).

The four winning concept designs, whilst embodying different layout ideas and different design elements, nevertheless included some similar characteristics:

i) Strict attention to the nature of the site; orientation, access, boundaries, the immediate neighbourhood, circulation and topography.

ii) Special interest areas.

iii) Surfaces and materials (including hard and soft areas).

iv) Provisions for different weather conditions.

v) Nodes offering opportunities for prospect or refuge.

vi) Links and connections.

There is little doubt that the initial provision of a comprehensive design brief can be critical to the proper functioning of people-environment settings (Porteous, 1977). As the playground for all children started as

a prototype, the jury for the design competition chose four overall winners. Each one of these finalists then had the task of bringing their schemes to the development stage. At the end of that phase a final winning contract was awarded for implementation. The final winning design is scheduled for completion in 1985 (Appendix 7).

Some of the design qualities and elements which were identified in the winning designs for the New York project, were incorporated into the GRPC concept. In particular, links and connections (item vi) was considered of critical importance by the staff at GRPC and also at the Bob Berwick Memorial Centre (BBMC) in Vancouver.

At the time of preliminary investigations for the GRPC project, literature which related specifically to the design of play environments for handicapped children was extremely limited. Even now (four years later), it is virtually the same situation. A very few integrative play-grounds, which are still in the planning or design stages, and which are subject to severe budgetary constraints, may reach a stage of substantial completion in the near future. Locationally, they will be dispersed over the North American continent and so will be prototypes in their regions. The onus of responsibility remains with the researcher-designer until such time that major changes in societal value systems occur. By the time this has happened, there will be comprehensive literature available relating to integrative play-learning environments. In Chapter 4, Section 1, constraints to new approaches and especially to the play and development needs of children, are discussed.

Chapter 4

The Play-Learning Centre Concept

1: Constraints to developing new approaches

Experience has shown that the implementation of new and innovative projects is never a straight-forward procedure. Inevitably there are constraints. For the project presently being considered these constraints include:

i) A widespread unawareness of the real nature of the problem, as well as a lack of concern;

ii) Inability of local authorities and institutions to instigate appropriate social policies;

iii) Inability of young children to indicate their preferences and voice opinions;

iv) Lack of information about the real needs of young people;

v) No provision for quality user-setting relations at the early planning stage;

vi) Problems in co-ordinating design concepts with societal values and administrative criteria.

Whilst the value of play for children is generally acknowledged in society, children with a developmental disability seldom have the opportunity to play with non-disabled children. This is partly attributable to the negative attitude of society toward differentness. Hutchison (1979) mentions two factors which may be responsible for this. These are the long history of such attitudes themselves, and the hierarchical structure of society, resulting in low tolerance for individual differences.

> The dominant values in this society place great emphasis on conformity, physical beauty, competitiveness and 'being the best.' For many people, responding to these demands is neither possible nor desirable (p. 17).

THE EFFECT OF NEGATIVE ATTITUDES ON A PERSON WITH A DISABILITY OR CHARACTERISTICS WHICH ARE PERCEIVED AS BEING DIFFERENT

PROBLEM :

Negative Attitudes
Society's negative role perceptions and low tolerance for individual differences result in the person with a disability being viewed as deviant (differentness which is negatively valued).

RESULT :

Labelling
The person with a difference which is devalued (e.g. slower at learning) is then labelled (e.g. learning disabled or mentally retarded). The problems with a label are; 1) We tend to focus on the person's disabilities rather than the abilities, and 2) we make generalizations about the whole person based upon misconceptions regarding that label; in other words, a disability tends to have a spread effect in the minds of others. For example, a person who is mentally retarded may be considered unfeeling.

Segregating
Once people are labelled, they are often segregated with others who have similar (and not so similar) differences. This segregation is usually done in the name of rehabilitation.

Accentuating the difference
Putting people with disabilities together is a "juxtaposition of differences" which further accentuates those differences.

Rejection
Accentuation of differences makes it difficult for people to be viewed as developing human beings and leads to rejection and further segregation and isolation.

CONSEQUENCE :

Major Handicap
A person who may have started out with a relatively minor physical or mental disability now has a major social handicap, which in turn prevents the development of self-confidence and involvement in the community.

(reproduced from : 'Recreation Integration' Peggy Hutchison and John Lord, 1979).

FIG. 4-1.

A chart showing the effect of such attitudes is reproduced in Figure 4.1. Society has changed considerably since the time when disabled children were locked away in austere institutions, usually with no facilities for play, recreation or development (Sandhu, 1976). Obviously, some progress has been made in the provision of environments for children with special needs, as previously indicated. Apart from the New York Playground for All children, however, little has happened to further the integrative approach to play environments. It has not been possible, for example, to utilize an evaluative technique for the purpose of designing and implementing an integrative play-learning centre, as there are none to evaluate.

Environmental planning and design initially involves the formulation of goals (Porteous, 1977). Figure 4.2 illustrates this planning-design process. The evaluation procedure may indicate goals which are desirable or goals which have been achieved. For the purposes of this thesis, the author has used Moore's (1979) Research-Programming-Design-Evaluation (RPDE) model. In a cyclical model such as this one the elements of research and evaluation are linked sequentially. This is explained further in Section 3 (Methodological Considerations), and Chapter 7 (Design Priorities). The RPDE system is shown in Figure 7.4.

Finally, the role of the designer is sometimes unclear. This is apparent even for projects which have a long history of development, as in school design. The problem is often attributable to the lack of time which is available for appropriate research. Paying for time which is spent on research and pre-design programming is in many instances

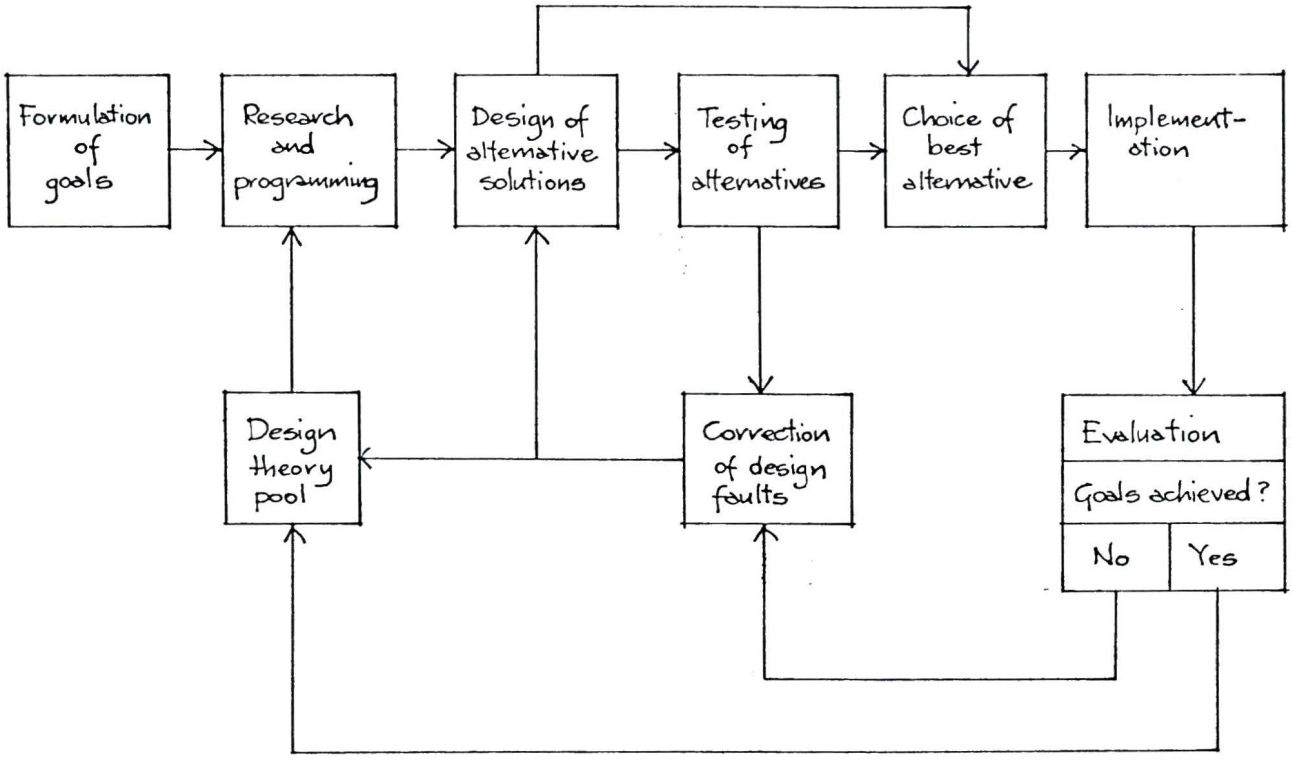


FIG. 42 PLANNING - DESIGN PROCESS, FROM PRELIMINARY FORMULATION OF GOALS.

FIG. 4·2 from: Porteous, 1977. Environment & Behaviour.

considered (by the client), to be money wasted. This has meant that, in order to be both innovative and optimally efficient, the designer has to undertake research, programming and information co-ordination as a separate and unpaid project.

2: Development of the integrative play-learning concept

Notwithstanding the constraints which have been outlined in Section 1, the play-learning environment project at GRPC has developed in a similar manner to many others of an innovative nature. Initially, the GRPC established a planning committee, which endeavoured to determine the 'state of the art' with respect to innovative play environments. The feedback from this preliminary investigation suggested that very little had been undertaken in the area of play-design for handicapped children. During the early period of information gathering, the HUD project in New York had not been discovered by the planning committee. The prevailing situation was as follows:

i) No examples of environments for handicapped children were to found, either locally or regionally.

ii) Play or development facilities for handicapped children could only be found within the confines of an institution. Such facilities were mainly therapeutic and used methods and equipment similar to the GRPC physiotherapy department.

iii) Examples of play-environments for children were to be found in England, developed by Lady Allen and HAPA. However, these playgrounds were developed on the European 'Adventure play' model. This type of playground has never been developed in North America, even for able-bodied

children.

The original brief that was given to the author called for concepts for an outside play environment, suitable for the needs of handicapped children. Co-incidentally, GRPC was endeavouring to project a more open attitude toward the immediate neighbourhood and the community at large, so it was suggested that facilities might also be available for neighbourhood children, although this precept was not unanimously agreed upon. The mixing of handicapped with able-bodied children in the pursuit of play suggested that an integrative approach would have to be a primary consideration. Consequently, the planning committee suggested the amended brief would call for an integrative learn-to-play environment. Eventually, this became the GRPC Integrative Play-Learning Centre.

The remaining sections of this chapter will look at the methodological considerations which impinged upon research and which was carried out at the Bob Berwick Memorial Centre (BBMC) as well as at GRPC. In Figure 4.3 a funnel diagram demonstrates how the background of this study gradually descends through various levels, changing to environmental planning and design for children and finally focusing on integrative design concepts. The middle sections of the diagram include the determination and identification of methods: the sections which are shown as a pilot study correspond with the research program at BBMC; the line M corresponds to the first schematic outline for the play-learning centre, which is described in Chapter 8 (Forming the design model).

3: Methodological Considerations

According to Moore's (1979) RPDE model, the research component for

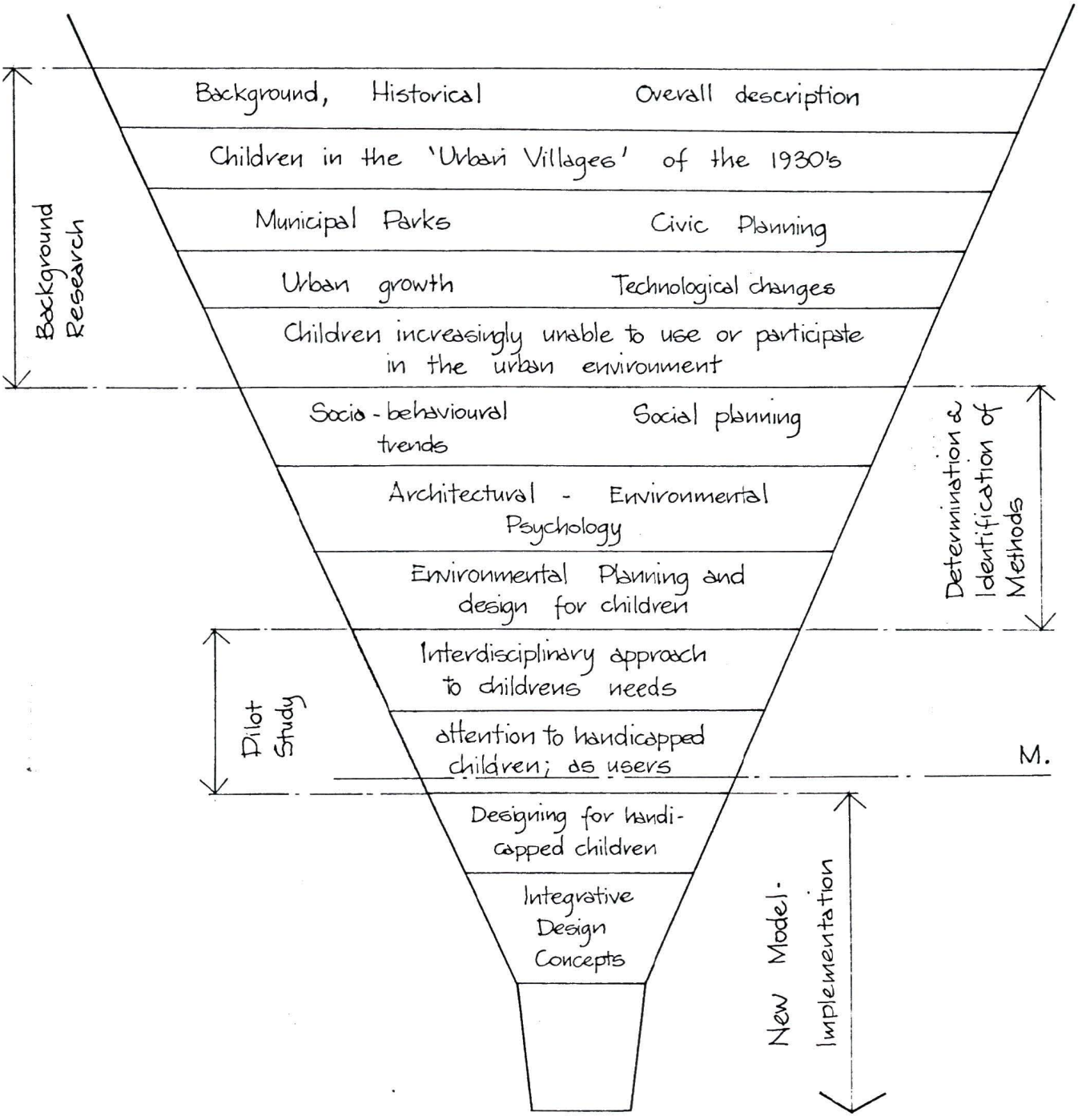


FIG. 4.3 Funnel diagram; showing stages towards integrative design concepts.

a new project should proceed from previous evaluative criteria. This is suggested within Figure 4.2 which demonstrates the cyclical nature of the model. However it has already been pointed out that the evaluative component for the design of the play-learning centre was not possible in this instance. Prior to research with children in various environmental settings, some attention was paid to methodology.

Firstly, the work of Hart (1979, 1980) and R.C. Moore (1977, 1980) with children-environment settings has suggested that quantitative research and subsequent analysis is extremely difficult to accomplish. Even if the methodology is exemplary, the resulting statistics may not be much use for design purposes. From the outset, a strictly quantitative approach for gathering information seemed inappropriate for the following reasons:

i) The type of activities which might be expected in a play-learning centre, regardless of how they might be categorized, are mostly experiential ones. It is believed that design criteria which might produce settings for experiential activities would not readily result from statistical surveys.

ii) It would not be very practical to use a questionnaire as a research instrument. Whilst both the staff at GRPC and parents might be willing to help in this way, it would be extremely difficult to invent questions in respect of a concept (such as an integrative play-learning centre).

iii) Spontaneous insights were sometimes gained from the children themselves, but seldom verbally. More often, such insights were attributable

to observed individual or group behaviour in specific environmental settings.

iv) In any case children, when asked questions which pertain to their preferences, will only mention what they know already from previous experience. This type of information is not conducive to innovative design. Of course, children may relate what they don't like about an existing situation, which can be helpful.

Finally, after some discussions with the GRPC planning committee, some of the Therapists, the Director and the Psychologist at BBMC, and parents, the author was convinced that a quantitative approach to gathering design-relevant information would prove to be too impractical. Hence, alternative or qualitative approaches were utilized.

It was decided that research should be undertaken first at BBMC and then at GRPC, where most of the research program was carried out. Permission to undertake research or other investigatory work was granted the author at BBMC, but the authorization was for a limited period only. Because of this, a shorter study was undertaken than had originally been intended and this served as a pilot project for the program at GRPC. For the latter program, an open ended and relatively unconstrained arrangement had been reached. Because of this understanding it was possible to utilize participant observation techniques. In the beginning, the author was treated with suspicion by the staff, and as a diversion by the children. These attitudes and reactions soon changed, when people became used to seeing the same person wandering around with a clipboard, or sitting quietly with note book, in a corner. Certainly, as far as the children were concerned,

the author was able to become 'part of the furniture.' At GRPC the participant observation became a component of the overall structural research program. Recordings of activities were taken, for example, during the following types of event:

i) Riding the pick-up bus to the centre, unloading, reloading in the afternoon and the return trip.

ii) Part of reception for children in the morning.

iii) Walks to therapy with children from their classrooms.

iv) Hydrotherapy session.

v) Musical sing-along session.

vi) A birthday party with pre-school group.

vii) Socializing with helpers in the kitchen.

viii) Parent-child group sessions.

ix) Organizing groups for swimathon.

x) Sitting quietly with individuals in passive-retreat zones.

The author was able to be involved throughout most of these activities without detracting from the regular continuity of the centre. Other observational research, information and criteria gradually developed into a qualitative 'package.' This included:

i) Design-relevant-information from external sources. Including: Vancouver Children's Hospital; Sunnyhill Children's Hospital; children at Queen Alexandra Hospital; handicapped children in a shopping mall, and another group using a creative playground (see Appendix).

ii) Information in respect of user-types (this Chapter).

iii) Socio-behavioural considerations with respect to disabling characteristics (Chapter 3).

iv) Information from Handicapped Adventure Playground Association (HAPA).

v) Preliminary random observations.

vi) Observations of activities in creative playgrounds.

vii) Structured observations of integrated group at BBMC including outside activities.

viii) Structured observations at GRPC.

ix) Interviews with staff, parents, physiotherapists, other professionals and children.

The methodological approach which was implemented at GRPC is, philosophically, similar to the work of environmental psychologists. This is outlined in the next section.

4: Behaviour-Environment Situations and Environmental Psychology

Item v) above may not at first seem to be of great importance, but is a significant part of the methodological package. These preliminary investigations served to identify: (a) that which should be observed; (b) how to undertake the observations; and (c) how to record the information. In general, the observations which were recorded were of behaviour taking place in a specific environmental situation. Hence it would not have been correct to record the information without its context; in other words, the recorded information was in each case a behaviour-environment situation. This approach borrows from the work of environmental psychologists, and so should be examined.

Architecture is a functional discipline which has traditionally neglected behavioural criteria. Psychology, on the other hand, has traditionally neglected the external and material aspects of the environment,

meaning person-behaviour exclusiveness (Krasner, 1980). The role of environmental psychology is therefore a corrective one. Barker (1968) used the term behaviour-setting for his research work. He defined it as:

> ... not simply a space with any set of boundaries and a random array of objects. On the contrary, its physical dimensions, the nature of its objects, where and how they are placed and so on, are all determined by the socially defined character of the situation (Barker, cited in Proshansky, 1974, p. 71).

The development of research models for person by situation observations is not an easy task, as there are many variables which have yet to be accounted for, such as personality (Zeiss and Zeiss, 1974); previous experience in situation (Mischel, 1973); ambiguity and looseness (Mischel, 1976). The underlying problem (as with Barker's behaviour settings), is that structured observations require as components a recurrent behaviour pattern and a specific time period, among other considerations (Porteous, 1977). Barker's model is relatively static because "... behaviour involves a continuous interaction between the person and the situation" (Waters in Krasner, 1980).

According to environmental psychologists (Endler and Magnusson, 1976), this approach is known as interactionist. The fundamental characteristic of a contemporary interactionist approach is the one of locus of control. Waters has stated that an interactionist perspective implies that the following question is critical:

> What treatment, by whom, is most effective for this individual with that specific problem, and under which set of circumstances? (Waters, in Krasner, 1980)

Thus an environment which helps one individual to cope more

effectively may have different effects on another. In dynamic situations therefore, it is better to study relationships among causes of behaviour. According to Waters, this is a reactive approach and would record the extent to which behaviour can be accounted for by the situation and the person. In addition to the problem of using the most equitable approach, is the one of the actual physical environment and the many ways it may be characterized by environmental psychologists. The different characterizations will not be described here, but it is apparent (for example), that people from very different backgrounds may be capable of reacting to the same physical space in greatly differing ways.

5: Implications for research at GRPC and BBMC

From the information outlined in Section 4, the author resolved to utilize the reactive approach as advocated by Waters (in Krasner, 1980). This resolution meant that activities recorded would be accountable to the environmental situation together with the actors. In other words, as far as could be determined, the person-environment would be regarded as an integral unit.

Preliminary random observations suggested that the observational research program should comprise two elements which would complement each other. These two elements were: participant observation and structured observation. For the latter, the most relevant areas of GRPC were identified for the research program and these are described in Chapter 6. The research was facilitated by the use of the recording format which was set out expressly for this purpose, by the author (Appendix 3). The participant observations took place at various times throughout the overall

research period, as and when an event occurred which could be taken advantage of (as with the birthday party and the parent-child group sessions). Special arrangements were made for participant observation on the bus and during therapy sessions.

It should be added that one of the main differences between the two types of research was in the employment of note taking. The sessions in participant observation were experiential events; an account of each session with the most outstanding occurrences was written out directly after the event. Sometimes, a single point would make the entire session worthwhile, especially if the information could be identified as design-relevant. An example of this phenomenon was the use of space on the pick-up bus. Regular users of this transportation system had their preferred places which they had assumed over a period of time. Newcomers who usurped the system were usually made aware of their 'mistake.' Another example is that in many instances, a child with a dominant personality was often able to take charge of a group, even though he or she might be relatively more disabled than his or her peers.

It was noted (in Chapter 3), that the HUD project in New York had devised a list of six user-groups which were used as a basis for design. However, subsequent to meetings with the GRPC planning committee, only five groups were identified. These groups were used in connection with design-relevant information:

i) Able bodied children;

ii) Neuromuscular and orthopaedically handicapped;

iii) Mental retardation and brain injuries;

USER GROUPS	DESCRIPTION	ACTIVITIES	NOTES, SPECIAL FEATURES
Neuromuscular & orthopaedically handicapped	Cerebral Palsy Spina Bifida Muscular dystrophy Amputees	Environment should motivate the wheelchair bound to use abilities to the fullest	Access. Special handrails, benches etc., shade & drinking fountains.
Mental retardation & brain injuries	Mental retardation Mildly retarded Severe Other	Motor skills, jumping, bouncing, coordination, balancing. Nature, natural materials.	Rubberized zones, soft areas, supervision Shade, cover, enclosure Toilet facilities.
Visual and hearing problems		Use of other senses emphasized.	Safety, soft areas Tactile & sensory environment. Water, colour cues.
Autistic, Epileptic, other		Different levels of 'normal' activity	Quiet Areas.

TABLE 4·1 USER GROUPS AND REQUIREMENTS

NOTE: Able-Bodied children comprise the fifth group

iv) Visual and hearing problems;

v) Autistic, epileptic and other.

Some basic requirements for each of the five user groups were assembled and these criteria were tabulated (Table 4.1).

The next chapter deals with the research which was undertaken at BBMC in Vancouver. The implications for research, which were derived from a methodological analysis and described in this chapter, were implemented. In summary, the sequence from inception to research has been to identify constraints to the development of innovative approaches. In this respect, it has been observed that societal attitudes and entrenched bureaucracy are partly responsible for this situation. To overcome these types of barriers, a great deal of pre-design planning and programming is necessary. The people who commence this programming should be a mixed group, comprising: medical personnel, therapists, administrators, designers, parents and other interested parties. In fact, several groups were formed at GRPC who provided programming input. The preliminary input from these groups, together with information from the literature, enabled the author to decide upon a qualitative rather than quantitative approach to the methodology. Finally the two components of observational research to be utilized (participant observation and structured observation), were described in terms of their intended purpose.

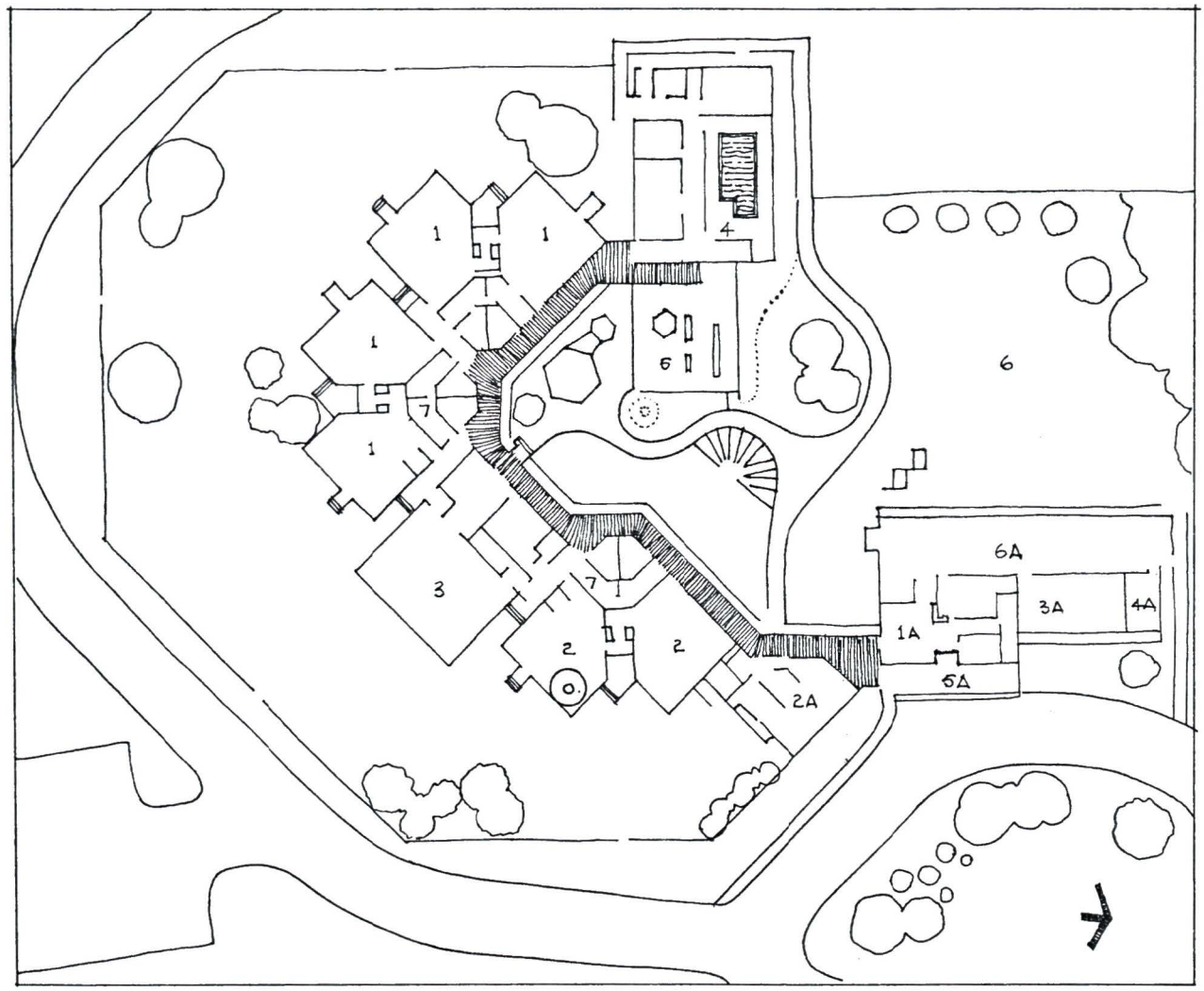
Chapter 5

Research at the Bob Berwick Memorial Centre

1: Preliminaries

The research which was carried out at the centre was of a shorter duration than originally intended due to a time limitation placed upon the author by the administrative advisory board. Because of this time constraint, the research was shortened to a pilot-project format. The use of the observational recording instrument, as determined beforehand, served as a useful introduction to the comprehensive research at GRPC. Most of the research for this purpose was undertaken during the last week of February in 1981. However, some additional observations were made during the summer. These later observations were made in order to observe play activities outside in warmer weather.

The centre itself was built in 1976. It is situated amidst pleasant surroundings on the University of British Columbia (UBC) campus. The interior spatial arrangements in particular, are of interest to the environmental designer. The rooms are arranged in group clusters with each group containing two activity and instruction rooms. There are also centralized toilet facilities in each of these groups. Additionally, there are separate rooms for the purpose of observation without disturbing the occupants during instruction. As the plan demonstrates (Figure 5.1), the resultant spatial form bends around and encloses a landscaped play garden. A continuous corridor also follows this line, providing constantly changing perspectives of the garden and also forming the boundary to the play space.



KEY: 1 Classrooms. 2 Special projects. 3 Activity. 4 Hydrotherapy pool.
5 Covered playdeck. 6 Play garden. 7. Observation
1A Lobby-reception. 2A Staffroom 3A Seminar. 4A Reading
5A Covered entrance. 6A Offices (Administration).

FIG. 5.1. PLAN OF BOB BERWICK MEMORIAL CENTRE IN VANCOUVER

BBMC comes under the jurisdiction of the British Columbia Mental Retardation Institute. It differs from GRPC in that it functions as a preschool only, and not as an assessment or treatment centre. However research and assessment for program development has been virtually built-into the centre. This is because the centre has a four-fold role:

i) As a service to children with delayed development;

ii) As a facility for student practice, fieldwork and other individual projects with the children;

iii) As a functional demonstration unit;

iv) As a research instrument for faculty and students. There is a close association with the UBC Medical school, as well as developmentally oriented and ongoing staff research.

The staff at BBMC are used to working in the midst of various on-going research projects. Most of the research, however, is medically, physiologically, or psychologically oriented. During the time that the author was involved at BBMC, it was discovered that:

i) No research of an environmental nature had been carried out at the centre;

ii) As far as was known, there had never been any attempts at correlating environmental settings with behaviour;

iii) The medical researchers nearly always concentrated upon the type of behaviour taking place regardless of its spatial context (whereas the environmental designer notices <u>how</u> space is being used in a particular behavioural situation);

iv) Any given behaviour may vary substantially according to whether

the environmental setting is formal, supervised, or free.

During the research period there were approximately forty children in attendance at BBMC, functioning at various levels of retarded development. Additionally, there are individual children and groups who use the centre on an ad-hoc basis, and an ongoing program with an integrated group of children. The number of staff in attendance at the centre varies from time to time, but usually comprises the following full-time component: 5 (approximately) Pre-school supervisors; 7 (approximately) Assistants; 2 Aides; 1 Program co-ordinator; 1 Psychologist; 1 Director; 1 Secretary. As well as the full-time staff, consultants are used on a regular basis and these include physiotherapy and occupational therapy, speech therapy, and a social psychologist who attends to special behaviour problems as well as staff training sessions. A music therapy program is also in operation. This program was the first of its type to be implemented in Canada, and since its inception at BBMC, the therapist had produced some interesting results. For example:

- A child who was classified as 'almost totally deaf,' had learned to beat drums in time with other instruments being played, by responding to vibrations;

- a child with severe behaviour problems was interacting positively with other children after a few band sessions;

- partially sighted children in particular like to produce sounds from musical instruments.

These encouraging results were noted by the author as design-relevant-information and were later utilized in a project in Vancouver. Also, the

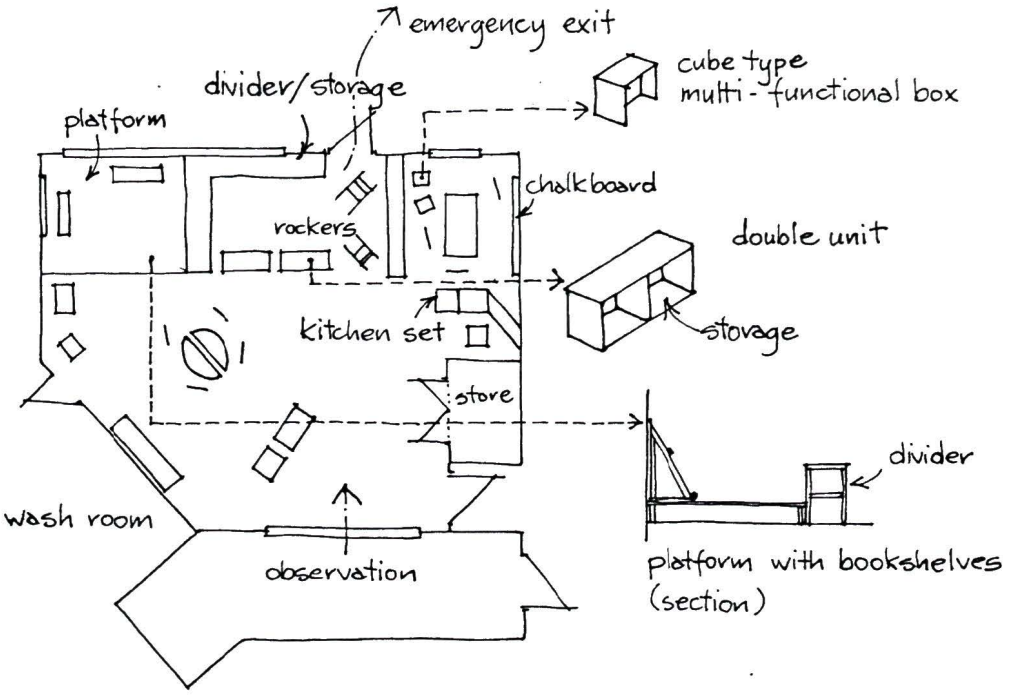


FIG. 5.2. Internal arrangements of special instruction room at the Bob Berwick Memorial Centre (BBMC).

Shelving, including use of top surface
Built in storage units
Cubes, as above
Low-level tables
Side tables
Stacking blocks, fabrics & miscellaneous loose-parts.
Campbeds for P.M. naps.
Cable-reels.
Painting easels
Rocking chairs

Table 5.1. Fixtures & features of special instruction unit.

implications derived from this type of integrated group activity are that such camaraderie promotes co-operation and individual integrity.

2: Internal Areas

Observational research at BBMC was divided first of all into inside and outside areas. Secondly, the methodological analysis had indicated a qualitative approach to the structural and participant observation components. Due to time restrictions and certain other impositions the participant observation was limited to two musical therapy sessions, and some outside activity which is described in Section 3.

Most of the research which was undertaken inside the building complex was in one of the special instruction classrooms (marked O on the layout plan, Figure 5.1). The internal arrangements of this space are demonstrated in Figure 5.2 which shows the various fixtures and features. These are set out in Table 5.1.

Unlike GRPC, small walk-through observation chambers are included in the layout which have become extremely functional, both for the day to day observations of psychologists and paediatricians, and for visiting researchers. Most of the research which was undertaken for this study was derived from observations in the 'special purposes' room. This area was chosen because, at the time of the research program, a special integrative program was in effect. The children who comprised this group varied in number from week to week. However, during the time that research was in progress, the group comprised five or six special needs children together with four 'normal' children. On the first occasion that the integrative group was observed, they had been together for approximately

six weeks. After another six week period, there were noticeable changes in how members of the group interrelated, to be discussed below.

The layout of the special instruction room which is shown in Figure 5.2 has a central activity space surrounded by sub-areas and nodes in a similar manner to the classrooms at GRPC (Chapter 6). In the activity space shown in Figure 5.2, the teaching staff and assistants instigate small group activities and participation events. The segmental tables, countertops, desks and boxes are re-arranged quite often to suit the purpose of the moment. Certain movement patterns emerged during the observation of both semi-structured and free-periods in the classroom. The movement patterns were discerned as attributable to the layout of the activity space, and the sequence of events. As very similar phenomena were noted at GRPC, the diagrams in respect of these observations are shown in Chapter 6.

The plan (Figure 5.2) shows a reading platform in one corner and a small-group instruction facility in the other. During the research period the reading corner was always occupied by at least one individual, although sometimes the space was used as a retreat. On these occasions the book racks were useful items to hide behind. The adjacent soft-area was supplied with soft-furniture, soft toys, foam-shapes, cushions and fabrics. The rocking chairs in this area were used more frequently than most of the other furniture. The chairs were of several different sizes including adult size; this design consideration was especially appreciated by the smallest children who could either choose a very small chair or sit with a helper in the large chair. The adjacent corner was used for break time, group

instruction, special projects, activities in association with the kitchen area, and sometimes for story telling. The kitchen node was used by small groups for co-operative and role-playing games, including, for example, actually making cookies or a cake, and playing at making things or bargaining with things.

The central activity space was also used for early afternoon rest periods, when camp beds were brought out for the children who required a nap. Unlike other centres which the researcher has visited, a serious attempt has been made at BBMC to supply the users with furniture, counter tops and other items at the proper scale. It is still difficult to obtain such items that are in proportion to the size of intended users, especially at the pre-school and nursery level. Some of the fixed and movable features are indicated in Figure 5.2.

At BBMC, opportunities for participant observation were limited to the musical therapy sessions which took place during the author's stay. The first of these was a group session in which seven children took part, together with two aides, the music therapist and the author. There were different instruments in each station around the circle, including kazoo, tambourine, snare drum, triangle and other simple 'music-makers.' At regular intervals the group moved around to the adjoining position and the next instrument. The main point derived from this exercise was that the movement sequence was able to keep the group interested and focused. At this time, one individual in the group was continuously disruptive. However, after being placed in a sound-proof room with a set of drums for individual therapy, he became noticeably adjusted. During the first visit

to the centre, the activities during the free-period seemed to be divided, as the special needs children were either introverted or hostile to others. However, six weeks later the same children were functioning as a group. From this section of the observational research program at BBMC, design-relevant-information which was deduced was largely in the form of anthropometric criteria. The sketches in Figure 5.2 are indicative of such criteria. In particular the following was noted:

i) Proper scale is necessary in children's furniture design and fabrication. The author was informed that some of the marginally disabled pre-schoolers are "very small indeed." This means that even elementary-school scale units are still too big. The cube type boxes were noted as being able to serve a multiplicty of purposes (for sitting on or in; stacking up; forming steps, barriers, or enclosures; and to form a platform or stage).

ii) Multi-purpose and/or movable units are very desirable.

iii) The use of different levels is a real help in child-adult communication. As for example: children on platform or deck, negating constant bending down of teacher-helper. The use of several levels is possible; the mini-ampitheatre idea has since been utilized several times by the author.

iv) The size and shape of a space is important as a function of its utility. Circulation and successful progression of movement is contingent upon the position of entrance-exits, cupboard doors, built-in features and mechanical features such as ducting.

v) The creation of many small spaces is possible using a minimum

of structural help. Example: cube and storage boxes and foam blocks.

The rest of the research at BBMC was undertaken in the outside areas, mostly in the enclosed play-garden. This is described in Section 3.

3: Outside Areas

The design of the building complex, together with the wooded area which forms a boundary on the northern side, has created an ideal situation for the play-garden. A plan layout is shown in Figure 5.3.

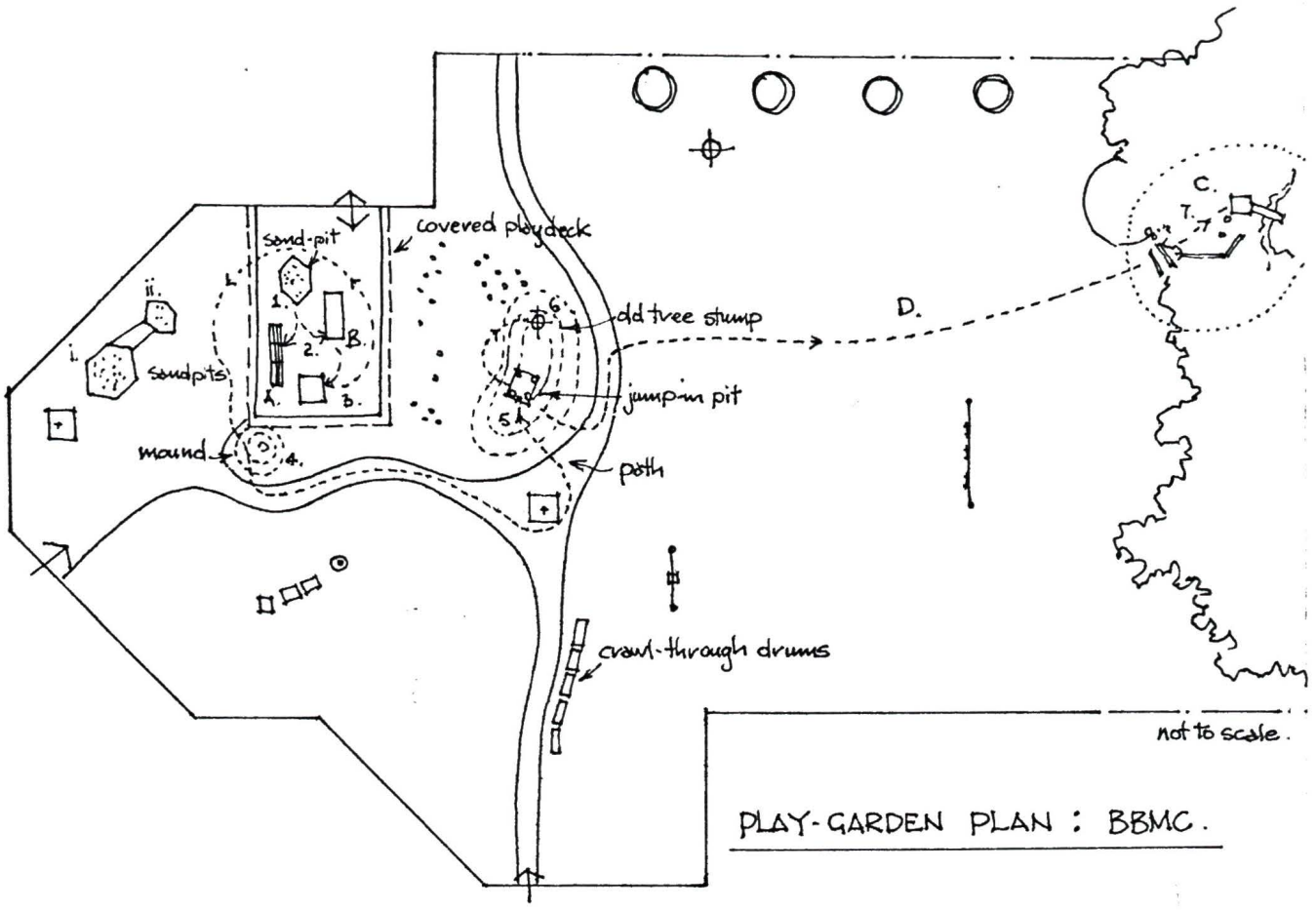
From preliminary site investigations, it was possible to identify a number of distinct zones and features. These were as follows:

i) Sandpits
ii) Roofed playdeck
iii) Mound 1
iv) Mound 2
v) Open space 1
vi) Open space 2
vii) Woods and natural area

These features are indicated on the plan and their relevance is outlined below:

i) The two hexagonal sandpits are used extensively throughout the year and especially on warm sunny days. On occasions when the weather is very hot, or during a rainy period, the sandpit in the covered playdeck provides a practical alternative. During the observation periods, the weather was mostly inclement, which restricted sandpit use to the one in the playdeck.

ii) The playdeck is covered with a large overhand pitched roof, and is open to the sides. A result of good indoor-outdoor design, this component of the play garden provides an excellent solution for outside play activities during the Vancouver rainy season. The children do in fact play throughout



Sequence of activities noted by arrow ----→ (preliminary observations).

1. Jump down sandpit; hexagonal opening in playdeck
2. A or B. A is a crawl-in, compartmentalized musical box, operated by wire strings and pipes.
   B - makes whistle sound when pedals outside box are jumped on.
3. Platform
4. Children use simple mound to climb/crawl up and over
5. Imagination → house, den, fort...
6. Several ways to mount old tree stump - ('paced alternatives').
7. Natural area. C → tree-house, water, rocks, rushes, logs - (exploration, discovery, enclosure, refuge).

D. Open-area.

FIG. 5·3

the garden in most weather conditions and foul weather clothing is available at the centre for this purpose. Most children enjoy the experience of the different weather conditions and seem quite adaptive to inclement conditions. Quite often however, it is too much trouble for teachers and superiors (see Moore, 1977).

The playdeck has some other interesting features which are shown on the plan and in Figure 5.4. A and B, located on the playdeck, are both contraptions which were designed to make musical noises. Unit A is made up of several compartments which may be climed into. Inside, steel wires of different sizes have been built-in to the unit which make the musical sounds. The vibrations which are set up in this way can also be felt by children who are technically deaf. Unit B is capable of producing an organ-like musical sound. This is accomplished when an individual jumps upon the springboard, which operates a bellows. Units A and B are shown in the diagrams Figure 5.4. The sandpit which is built into the playdeck is often used for passive or retreat type play. The sand level is approximately forty-five centimetres (18 inches) below deck level, thus providing opportunities for refuge. The platform on the other hand (number 3), provides for prospect opportunities, which is demonstrated in Figure 5.5.

iii) Mound 1, which is marked number 4 in Figure 5.3, is used quite extensively by the children for climbing-crawling and sliding-rolling action. Topographically, it is a focus and also provides a link between playdeck and path. This is demonstrated in the section through the playdeck (Figure 5.5).

iv) The second feature mound provides banking to the path, while

FIG. 5·4.

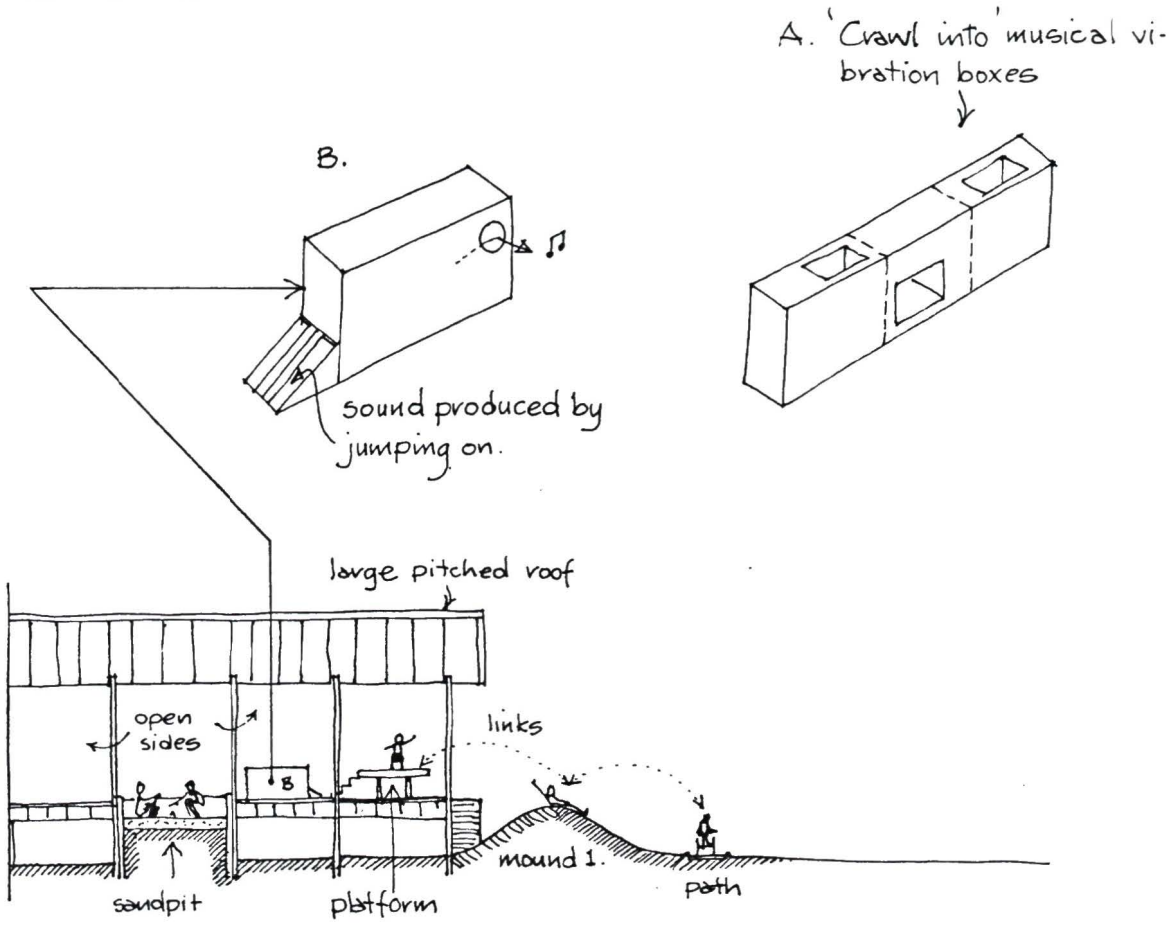


FIG. 5·5 Section Through Playdeck.

also being a buffer zone between the covered playdeck and the open space (D). The mound also incorporates a 'jump-in' pit with a sand bottom. The pit is used by the children in various imaginative ways, becoming a den, a house, or a fort. An old tree stump on the other side of the mound has been cut and pruned in such a way as to afford interesting 'perches' for climbing children. Sometimes five or six children could be observed on the old tree.

v) This part of the play-garden incorporated some small child-sized gardening plots, arranged in a convenient fan-layout in the bend of the path between the two mounds. However, according to the Director, they have never been properly utilized. Subsequent to a discussion with staff concerning this problem, it was suggested that part of the solution might be to arrange the plots at a different level. For example, a terraced arrangement would provide a clear definition for the purpose of the plots, whilst also becoming more accessible to non-ambulatory children. During the research period, this space was used very little.

vi) Area D of the plan, Figure 5.3, serves as a transition zone between activity zones i to iv, and natural area C. The space itself was little used by the children. The children from the integrated group were the only ones to cross the space without being directed. The motivation was exploration and discovery in area C.

It has been noticed that the children who attend BBMC, GRPC, and other centres, find little use for open and nebulous spaces such as this one. They prefer small, subjective environments in which to develop their knowledge and creative spirit. Similar observations have been made by

others (Dattner, 1974; Moore et al, 1979).

vii) The natural (or wooded) area provides opportunities for many aspects of developmental play, such as: mind-body co-ordination, gross and fine motor development; co-operation; prospect and refuge; passive or retreat-type play.

The first three of these aspects were noted with respect to activity on or around a platform and ramp structure, which is situated near the edge of the trees. Also with respect to group activity, children sometimes move logs and other materials to form enclosures or boundaries to spaces they have defined. Similarly, the top of the platform could be regarded as a place of prospect, whilst the small spaces under or behind the platform were clearly refuges. The platform could be reached by the ramp or by a number of climbing methods, varying in extent and difficulty, hence the use of Moore's (1979) expression 'paced alternatives.' A small watercourse and pond provided settings for passive play, and for experimenting with bridges or dams.

From the research which was undertaken in the play-garden and outside areas of BBMC, preliminary design-relevant-information was extrapolated from the recorded observations:

i) A need for a variety of spaces is evident, ranging from small one or two-person enclosures, to larger areas suitable for group play.

ii) Large,nebulous spaces are not very useful, except as landscaped transition zones, or for pathways.

iii) Topographical features are very functional devices; providing buffers, vantage points, screening, natural facilities for climbing and

tumbling. They also enhance the appearance of the environment.

iv) An indoor-outdoor feature facility seemed a very logical development, especially for a west-coast climate.

v) A well thought out pathway system provides interconnectedness of elements, which might otherwise appear to be randomly dispersed.

vi) As noted from the inside observations, the use of levels affords access and communication.

vii) Noise or music making features have excellent therapeutic value, and especially so for the partially sighted.

viii) The provision of a natural setting together with loose parts is conducive to co-operative play. It therefore has a 'balancing' aspect.

The information obtained from research at BBMC was reinforced by the more comprehensive research at GRPC. Additionally, the criteria from BBMC became a useful tool to provide a focus for the remaining observations.

Chapter 6

Research at the G.R. Pearkes Centre

1: Preliminaries

Since the centre was established in 1968 under the auspices of the Vancouver Island Cerebral Palsy Association, GRPC has changed both physically and in philosophical approach. This is undoubtedly due to a combination of events over the years. For example: the physical expansion of the complex due to increased intake; conflict and communication problems between departments; changes in the district health care policies; the joining of GRPC with the Queen Alexandra Hospital for Children (QAH) for administrative purposes.

GRPC is located to the north-east of the City of Victoria, close to Finnerty Cove and within half a mile of the University of Victoria campus (Figure 6.1). The centre is immediately adjacent to the Queen Alexandra Hospital for Children. Until recently, the two institutions operated as separate entities. They are now jointly administered. One of the effects resulting from the change in administrative structure is that of increased co-operation between the two centres together with greater flexibility. This change may be the first real step towards the provision of an integrative play-learning environment. Along with these attitudinal changes, GRPC has been strengthening the links between itself and the university, notably with the departments of Childcare and Neuropsychology.

The overall case load at the centre approaches 400. However, two-thirds to three-quarters of these are out-patients. Approximately 80 attend the combined daycare program and 35 to 40 attend the full-time program. Presently there is more concentration on the multiple-handicapped in the

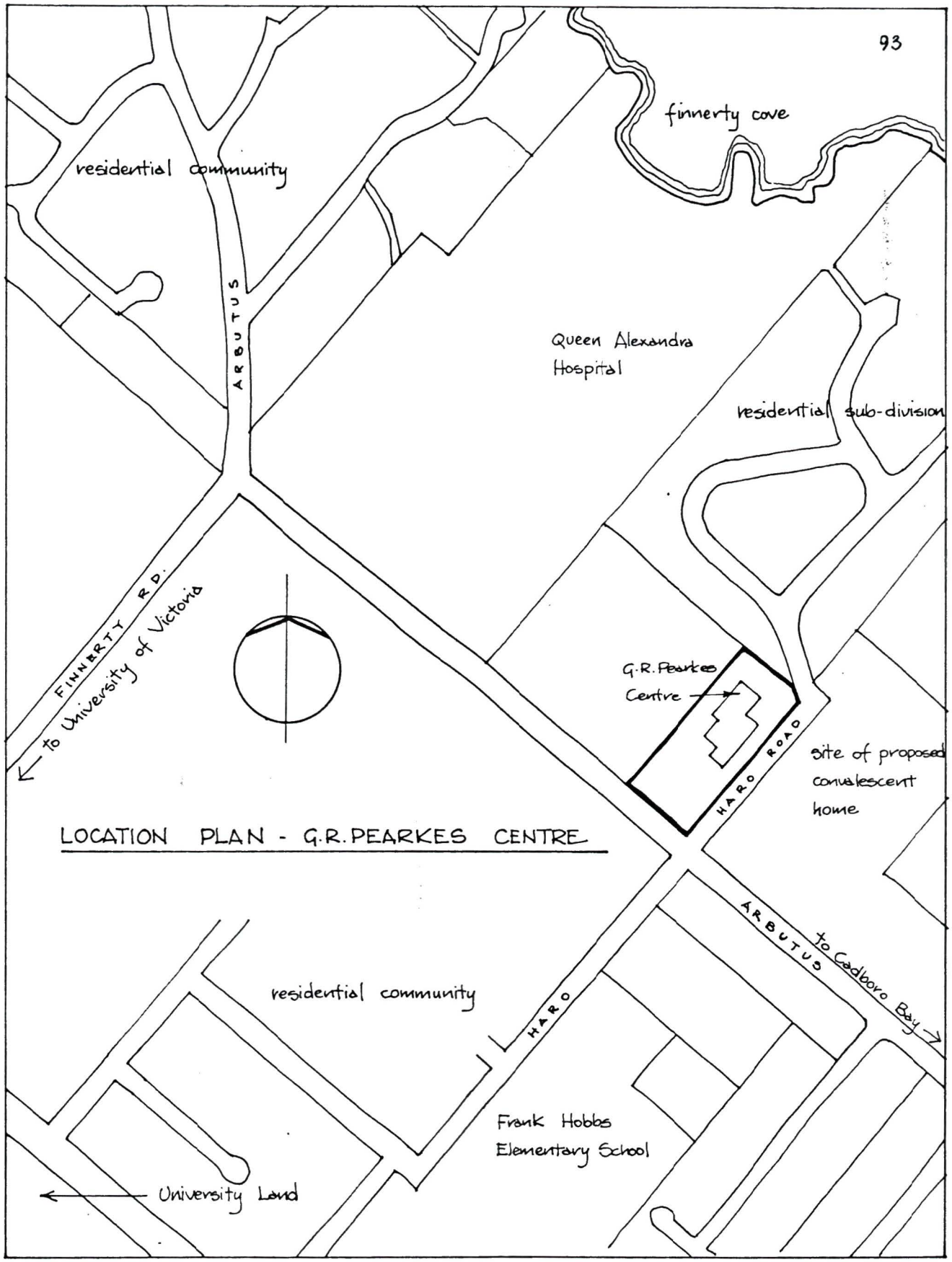

finnerty cove
residential community
ARBUTUS
Queen Alexandra Hospital
residential sub-division
FINNERTY RD.
to University of Victoria
G.R. Pearkes Centre
HARO ROAD
site of proposed convalescent home
LOCATION PLAN - G.R. PEARKES CENTRE
ARBUTUS
to Cadboro Bay
residential community
HARO
Frank Hobbs Elementary School
University Land

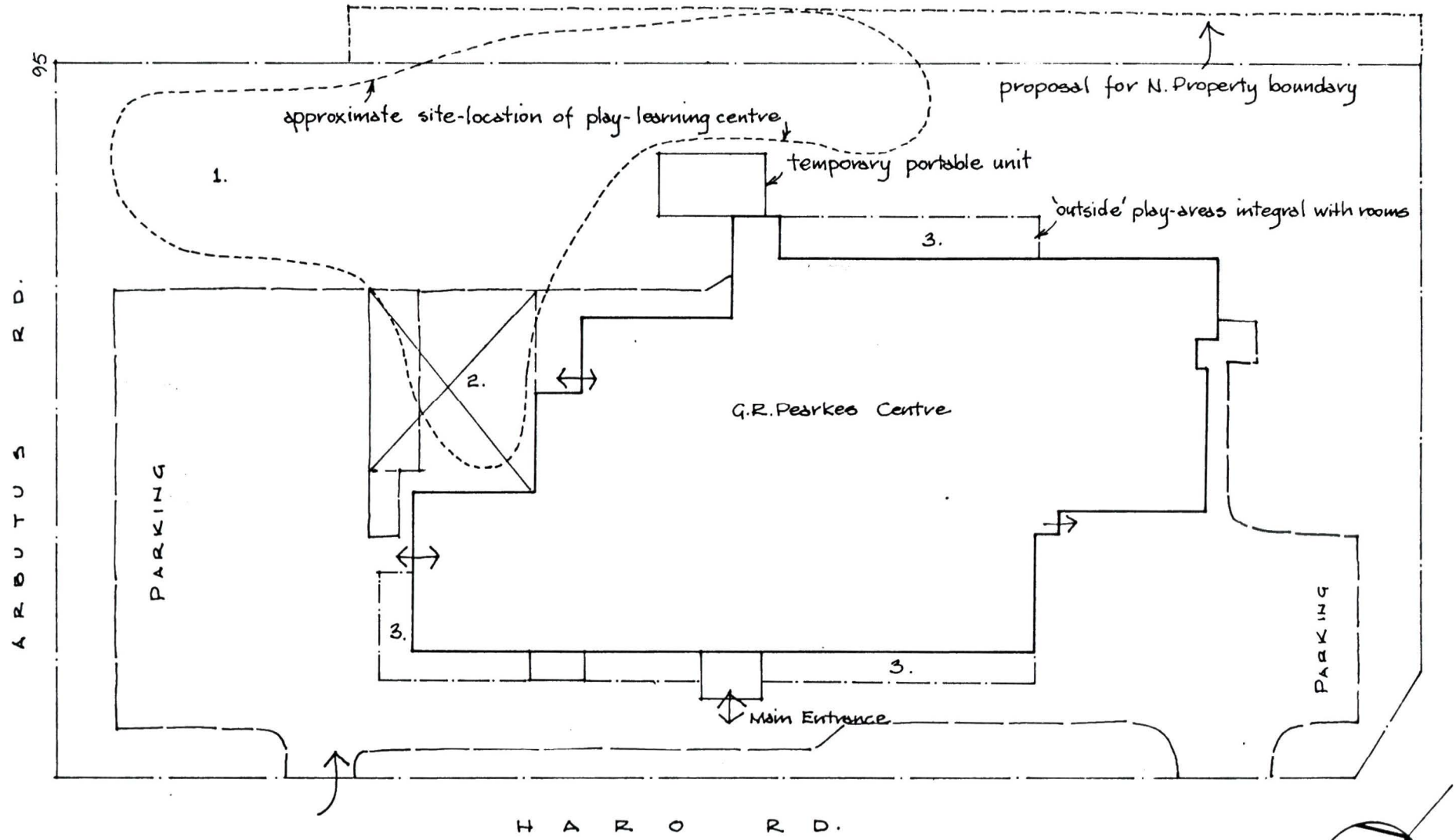
FIG. 6·1

pre-school range. There is also a continuing and realistic endeavour to avoid enrolling children with socio-behavioural problems only.

Since the centre opened there have been three extensions to the building complex including a portable unit which presently serves as a staff room and two small offices. During the early planning stages, the untimely addition of the portable unit placed quite severe dimensional restraints on part of the play-learning site. Accordingly, at this time it was proposed to move the intermediate boundary approximately 20 feet in order to regain the necessary space. However, before permission was obtained to do this, the amalgamation process began, resulting in the removal of the boundary. This potential problem is indicated in Figure 6.2.

With the removal of this boundary, additional space for the play-learning centre was appropriated. Additionally, an early outcome of the merger between GRPC and QAH was a physical link in the form of a new path between the two. This development implied that some of the children from QAH would eventually use the play-learning centre, especially those using electrically propelled wheelchairs.

The proximity of residences and other buildings is an important consideration as the integrative concept provides for the use of the centre by children from the immediate neighbourhood. The nearest residential sub-division abutts GRPC to the north-east, and other residences commence on the other (south-west) side of Arbutus Road. The Frank Hobbs Elementary School serves both of these sub-divisions (Figure 6.1). At the time of pre-design programming, it was assumed that children from these neighbourhoods would be the ones most likely to participate in the play environment. Hart



SITE PLAN, G.R. PEARKES CENTRE

10 40 80 120 ft.
5 20 60 100

FIG. 6·2

1. Proposed site for Play-learning Centre, extg. grassed area.
2. Outside play-area, blacktop-hard area, perimeter play equipment.
3. Fenced outside play-areas integral with classrooms.

(1979) discovered that the spatial range of young children from the home-base is not very extensive until the age of seven or eight is reached. Certainly, the range for pre-school children is likely to be less than a quarter of a mile.

2: Research Strategy

As at BBMC, some time was spent making random observations throughout GRPC. This period was inclusive of time spent talking to staff, aides, volunteers, parents, bus drivers and maintenance personnel. The author was able to gradually build up an overall understanding of the complex network of people who are instrumental in the continuity of the centre.

The children who attend GRPC are in constant and sequential contact with many different individuals or sub-groups of people who work at the centre. Figure 6.3 illustrates the variety and continuum of contact. In many cases children follow individual programs, so that each individual's average day varies. The point is that whereas children may be in contact with different staff, teachers and specialists at the centre these individuals or groups may not often meet with one another. There is therefore, a possibility that each person-component may be capable of eliciting quite different levels of reaction or co-operation from the same child. In effect, each person has a different type and quality of expectation in working with the children. For example, the therapist is concerned with therapeutic modes and their effectiveness; the instructor is concerned with instruction methods; the aide is concerned with the level of co-operation from his or her charges, and other specialists each have their own focus of concern. All of the above serves to reinforce the perceived

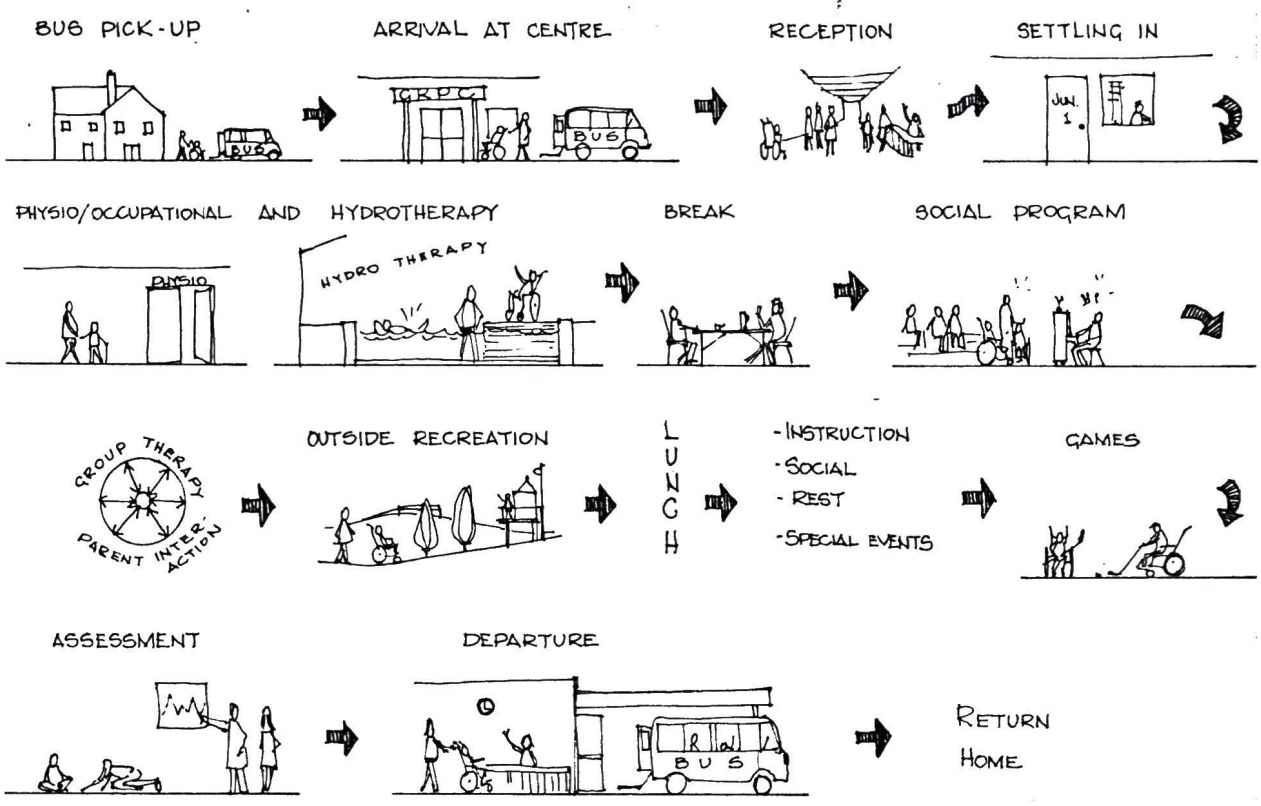


FIG. 6·3 DEMONSTRATING THE VARIETY AND CONTINUUM OF CONTACT THROUGH EACH DAY.

Sample contact and interaction with :

Bus driver	Receptionist	Teachers	Class/Session
children in bus	Staff	Aides	Teacher
	Helpers	Other children	Specialists
	Other parents	Friends	
	Volunteers		

Also: Therapists, Paediatricians, Visitors, Psychologist, Other Medical personnel & Administration.

need for a high level of communication at the programming stage of the project.

When a working knowledge of GRPC had been discerned, that is after an initial period of a week, a plan of the centre was drawn up showing the individual room and space designations (Figure 6.4). Congruous with Figure 6.4, a second plan was determined which was divided into use-specific zones; this is shown in Figure 6.5. From the use-specific zones indicated in this figure, five environmental settings were identified for structural research. These were:

i) Arrival, departure and waiting zone

ii) Corridors and circulation zones

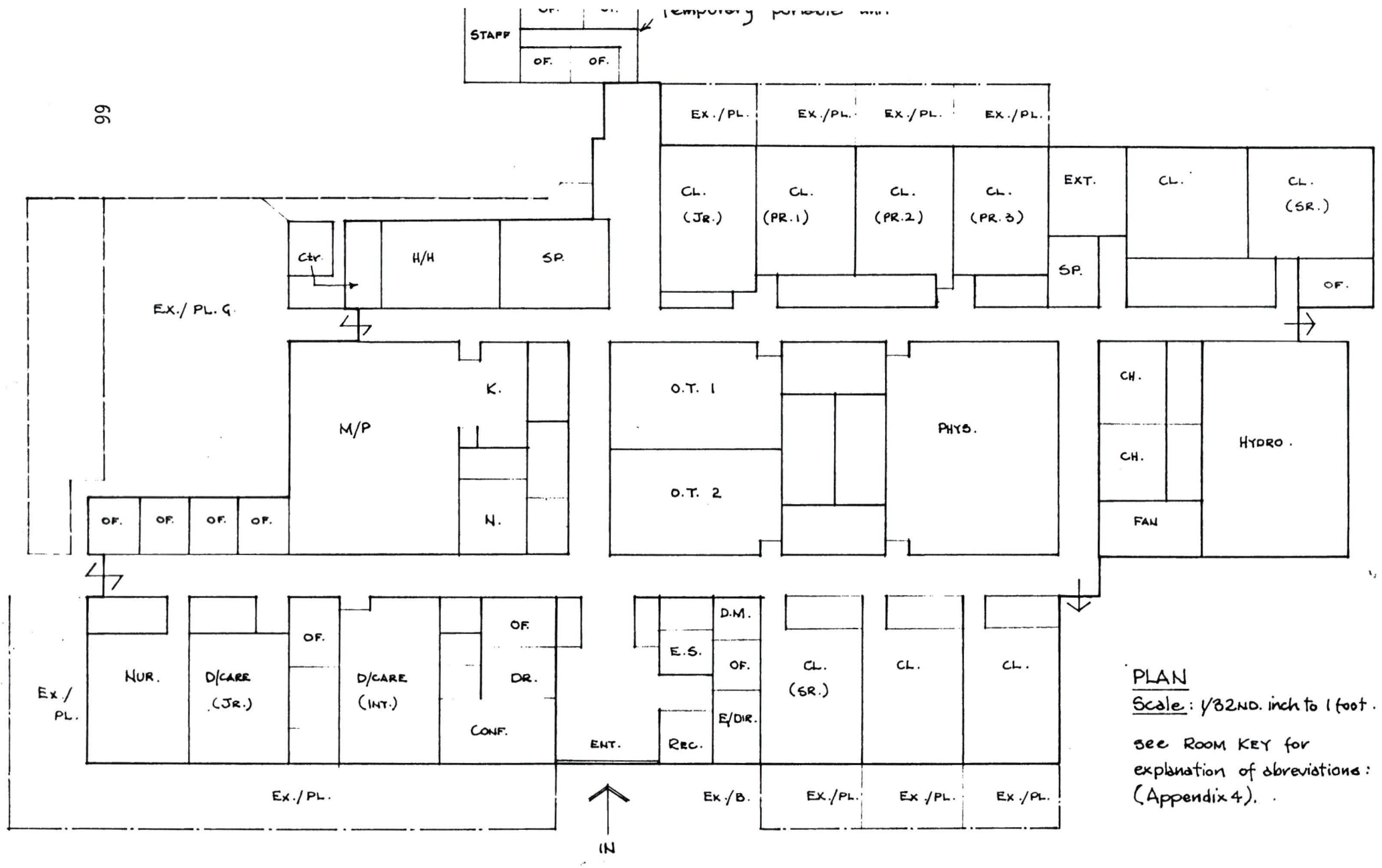
iii) Therapy zones

iv) Classrooms

v) Outside play zones

Of these five research zones, i) and v) were considered as unstructured settings; iii) and iv) were considered as structured; ii) was considered to be a semi-structured setting. Also, as outlined in Chapter Four, participant observation sessions were undertaken and complemented the information which was recorded in the five settings above. The first opportunity for participant observation was on the pick-up bus.

While some children are brought in by their parents on a regular basis, many of the children arrive at the centre by bus. The buses are of the small van-type, most of which are fitted with a hydraulically operated platform to facilitate the loading and unloading of children in wheelchairs. The buses which are used at GRPC are usually donated by



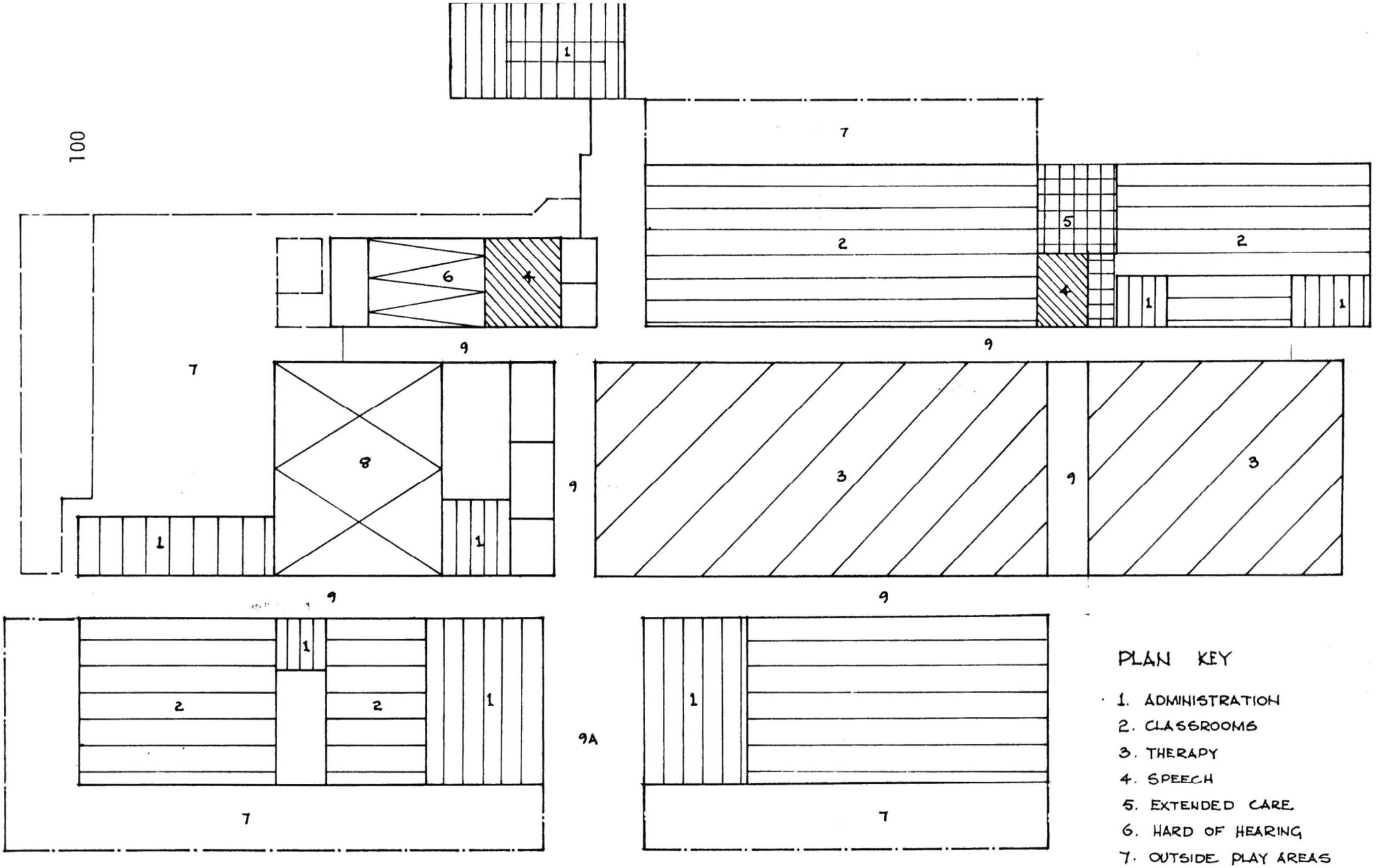
PLAN

Scale: 1/32ND. inch to 1 foot.

see ROOM KEY for explanation of abreviations: (Appendix 4).

MAIN FLOOR . PLAN OF CENTRE G.R. PEARKES, HARO RD., VICTORIA .

FIG. 6.4



ZONED PLAN OF CENTRE, FIG. 6·5

charity organizations, such as the Lions or the Rotary Clubs. They are operated by energetic drivers who are usually volunteers, and service areas using routes which have become established over a period of years. Children who use the pick-up service on a regular basis soon become familiar with the routine of the week. Hence, one child who is not ready for pick-up may be responsible for throwing others out of their schedule. Upon arrival at the centre, the busses stop at the bays outside of the main entrance.

As previously mentioned (Chapter Four), the most noticeable point to be recorded was the desire, on the part of the children, for orderliness and consistency: also a term used by G.T. Moore (1979) to describe a design principle. The orderliness was demonstrated by the seating arrangements in the bus, which tended to be the same every day. The children demonstrated an inclination towards territoriality in their desire to be located in the same place during the bus ride, even though the pick-up sequence dictated the choice of seat to some extent. According to the drivers, a new passenger would usually cause some disharmony, until an adjustment to the status quo had been established. The same principle was also in evidence during the unloading procedure, as some of the 'regulars' would complain if unloaded out of turn (this was only true for the non-ambulatory children).

Although Moore (1979) has pointed out that orderliness and consistency will help control children who are prone to sensory hyperactivity, he also adds that needs for such consistency should be balanced with the needs for novelty, complexity, and excitement. In this respect the author has recorded that the relative order of the bus ride was balanced by the

hubbub of excitement which was a daily occurrence in the arrival and reception area of GRPC. This is described in the following section.

3: Arrival, Departure, and Waiting Zone

On an average day and subsequent to disembarking from the buses, a high percentage of the children proceed, unassisted, through the foyer and on to their classrooms or designated areas. Included within these groups were children in manually operated and electrically operated wheelchairs, children using crutches, children with leg braces, and others using various types of ambulatory helpers. During the course of the observations in this area, it became clear that most of the children, regardless of disability, preferred to be independently mobile. Also, while they are being unloaded from the buses, the children take the opportunity to communicate with the driver-operators. In this respect some drivers are more sociable than others, a fact which is soon noticed by the children. The arrival sociability factor continues into the foyer where, once again, the children form into small groups, or wait for others with whom they have developed friendships.

As the children begin to arrive in the morning, the teaching staff together with aides tend to form a reception committee. On several occasions, the author took the opportunity to become a committee member for the purpose of participant observation. In this situation, a useful attitude to adopt is a positive and cheeful one, which the majority of the arrivals respond to. Impromptu social interaction between staff and children is often the result of such attitudes. Notwithstanding these remarks, at arrival time some differences in behaviour can be discerned. The following behaviour

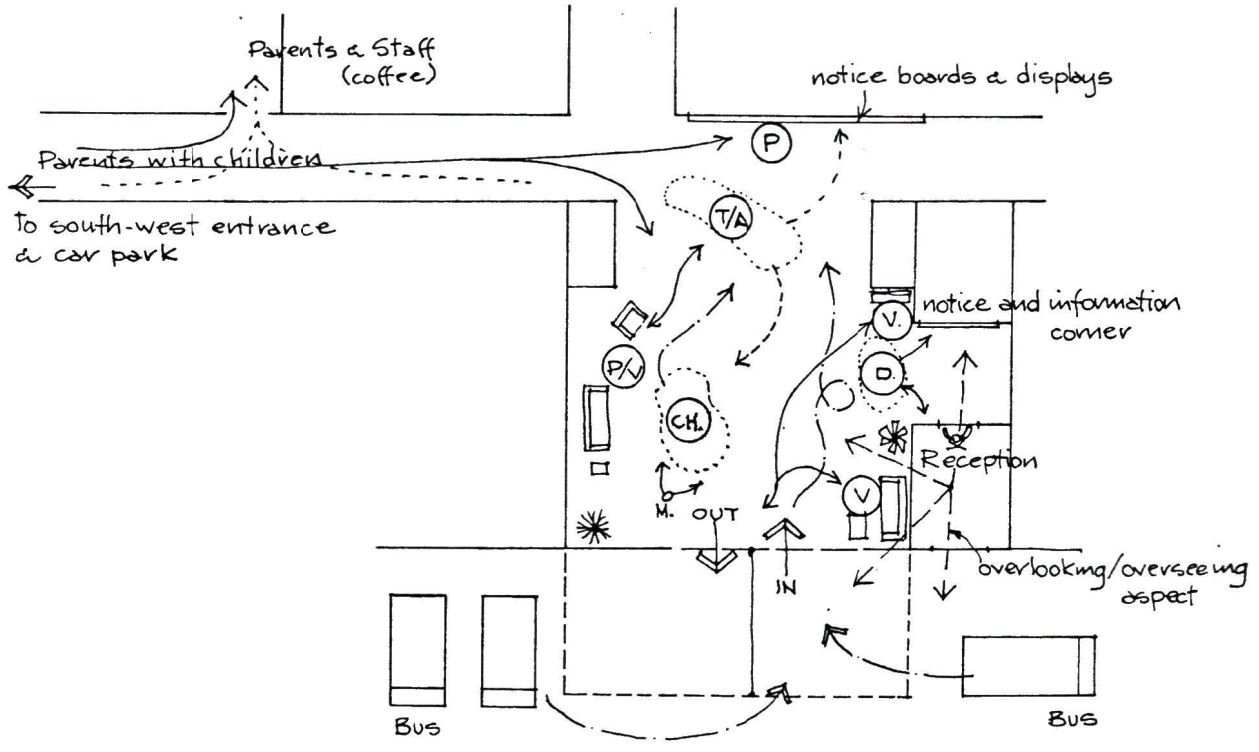


FIG. 6·6. DEMONSTRATING TYPICAL MORNING ARRIVAL ACTIVITY IN LOBBY-RECEPTION (GRPC).

KEY

(P) Parents

(CH.) Children

(V) Visitors

(D) Drivers

(T/A) Teachers & Aides.

M. Late arrival mingling with small group.

categories have been identified by the author:

i) The loiterers, who tend to stay in one location, until directed elsewhere by someone;

ii) The socializers, who maximize the opportunity for contact and communication;

iii) The serious ones, who make their way through the reception zone with apparent single-mindedness, to their instruction areas.

iv) The difficult ones, who are either unco-operative or demand attention. (This type of frustration is often attributable to specific handicapping problems.)

The arrival period at GRPC is responsible for much activity in the lobby-reception area. It becomes a hub of interaction which, at times, appears to border on the chaotic. For example, the bus drivers, together with parents and visitors, often scan the notice boards for news and relevant information. Also at this time, the bus drivers check with reception for any changes in their schedules. The parents who regularly bring their children to the centre often use the opportunity for social interaction or to meet with teachers and staff. Hence, at arrival time especially, the entrance-reception area is a hub of activity. In addition, the coffee urn in the kitchen area is indirectly responsible for generating regular traffic flows (Figure 6.6).

A combination of structured and participant observation enabled the author to record the most pertinent information in this setting. As a member of the reception committee (marked T/A in the figure), the author became part of the interaction taking place. The other aspect of the

research component provided criteria concerning individual and small group behaviour, together with other functional information such as: the overseeing aspect of the reception office; the use of the information corner; the flows of pedestrian traffic to and from the multi-purpose area. From the entrance lobby the corridors lead to classrooms, therapy areas, offices and staff rooms. The various functions of the corridors are discussed in Section 4.

4: Corridors and Circulation

The entrance-reception area was referred to as an unstructured setting. This is because all the interaction which takes place is spontaneous in nature. Consequently, because the activity which occurs in the corridors and circulation areas may be either directed or spontaneous, they are referred to as semi-structured.

The main corridors are easily identified on the main floor plan (Figure 6.4) and the zoned plan (Figure 6.5). It was soon discovered that the corridors serve a multitude of functions apart from the obvious one of enabling persons to move from place to place inside the building. The function of the corridors can be assessed as follows:

i) Type of use
ii) Areal use
iii) Time of use
} = extent of use

Within the present context, the type of use was related to the type of user, and for the purpose of the study, this was restricted to children. The term 'areal use' was used as a way to describe behaviour taking place in circulation areas with close proximity to established-use zones. For

example:

- Behaviour taking place in corridors surrounding the therapy zone;
- Behaviour in the corridors leading to outside play areas;
- Behaviour in the reception area and the multi-purpose space.

The time of use is also important in respect of the generating of 'flows.' The type of flow which is generated at arrival time is demonstrated in Figure 6.7, and other types of corridor use which are time-specific are indicated in Figure 6.8.

Certain parts of the corridor system are used more than others. The section between the main entrance doors and the first intersection (Figure 6.7) is the part of the circulation system that is most used. The children, however, often use the corridors for uses other than functional ones. These other uses include:

i) Therapeutic perambulation, which may be directed by staff or may be self-motivated. (There is a double handrail along the length of all the corridors.)

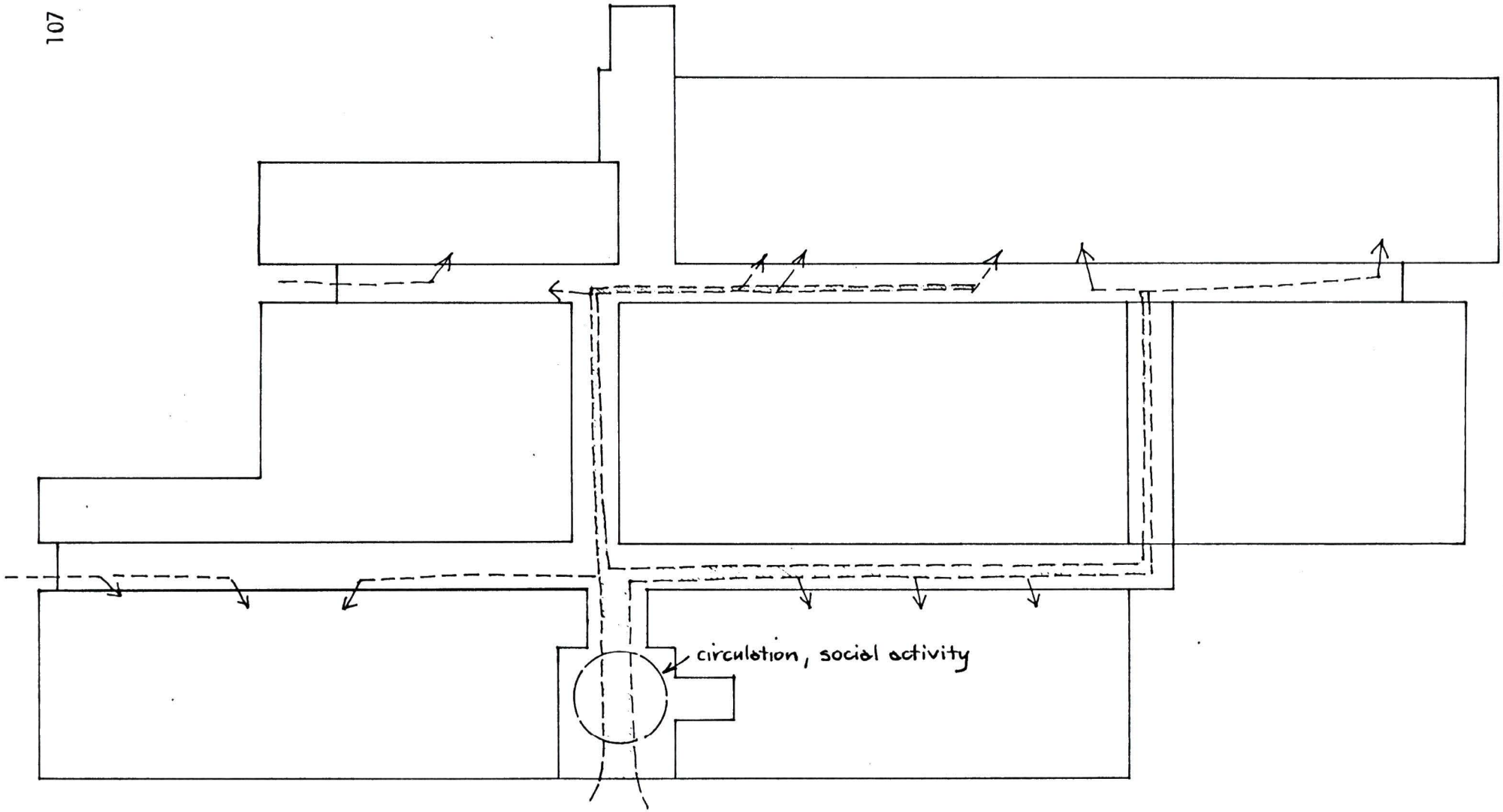
ii) Individuals taking 'time-out' of a class or other learning session.

iii) Individuals taking and delivering messages, especially children in electric wheelchairs.

iv) Small group activities. Sometimes, a convenient space in the corridor is used by a group of two or three children, and an adult helper, for instruction or therapeutic play.

v) Serendipitous meetings and what Ward (1978) called the 'colonization of small spaces' for play purposes.

Some of the above information was recorded during structured observations,



FLOW DIAGRAM : CHILDREN ARRIVAL.

FIG. 6·7

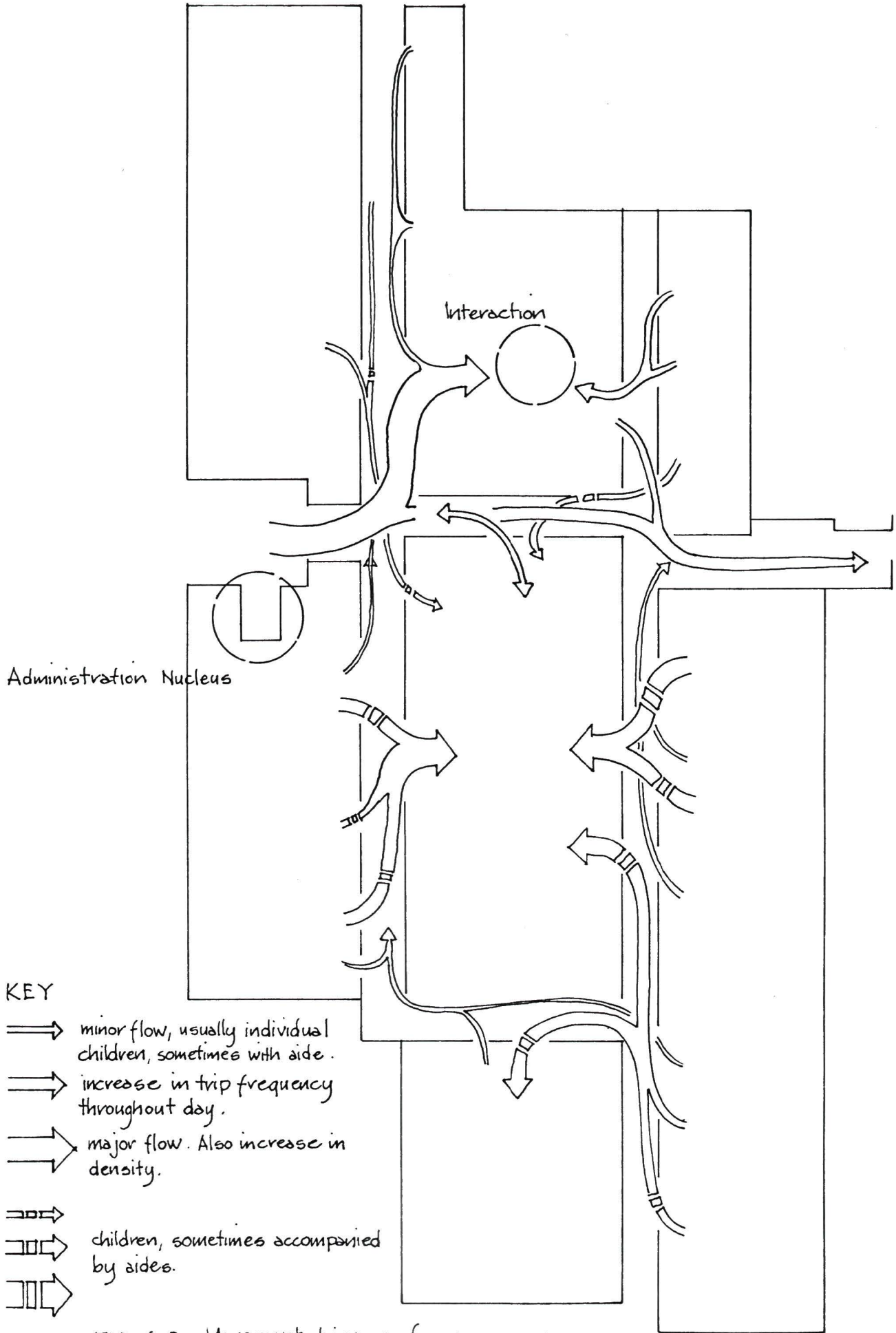


FIG. 6·8 Movement trips & frequency use of corridors

when the author was stationed somewhere in the circulation areas. However, the major part of the information accrued whilst accompanying children to and from their therapy sessions. These short periods of participant observation enabled the author to perambulate through the Centre at the pace of disabled children and, in part, to experience something of their perspective. The impromptu actions and interactions of the children were felt to be of particular significance. Hence, the information which was recorded during these periods was 'translated' into design relevant information. Some typical examples follow:

a) Climbing or crawling up and down portable steps, or just sitting on steps. The steps might be fabricated from boxes, blocks or other loose parts. The fixed double handrail, which is a permanentfeature in the corridors, is used to assist climbing or descending.

b) Using large wooden blocks for building and sometimes to form enclosures.

c) Developmental exercises with colours and shapes. A small group of two or three plus teacher or aide, or simply 'one-on-one.'

d) Socializing: with children from another part of the Centre, with staff, and sometimes with the GRPC dog.

With regard to item d); during the time that the author was carrying out research at GRPC, the 'resident' dog (belonging to the maintenance man), had become very popular with many of the regular attendees. He was often seen counselling a variety of children in various part of the corridor system. Sometimes, during this type of observation, one or two children were noticed at desks in a quiet section of the corridor system, undertaking

individually assigned tasks. About 60 percent of the children who attend GRPC have individual or semi-individualized programs.

The 'makeshift' use of circulation and similar space appeared to be enjoyed by the children. This observation was reinforced during subsequent discussions with staff, who affirmed that such un-planned use of nodes in parts of the corridors was appreciated, especially when the children managed to participate in setting up the work area. These perceived attempts to manipulate the environment were also noted as design-relevant information. Additionally, the successful negotiation of the corridors by some of the children demonstrates a certain amount of environmental competence.

Finally, as the GRPC dog appeared to be such a useful attribute (he was often a part of the morning reception committee, and appeared when called on the paging system), it was decided to incorporate an animal area into the play-learning centre concept. Interaction with domesticated animals has been a feature of the London based adventure playgrounds and Lady Allen was a strong supporter and believer in the therapeutic value of animals.

It is clear that corridors in buildings have many uses, other than those envisaged by the architect or designated by the fire marshall. In this case, some of the uses are developmental and exploratory, as well as being functional. After several periods of research in the corridors, over two weeks, attention was directed to the therapy areas.

5: Therapy Areas

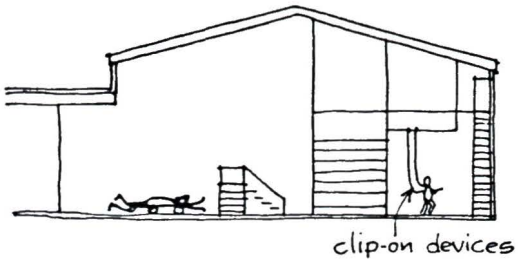
At GRPC, the therapy areas are divided into physiotherapy, occupational

therapy and hydrotherapy. Together, the therapy areas occupy most of the central space of the building complex, as indicated in the zoned plan (Figure 6.5). The main floor plan (Figure 6.4) also shows the link between the occupational and physiotherapy areas, even though this space is also utilized for storage areas and small offices.

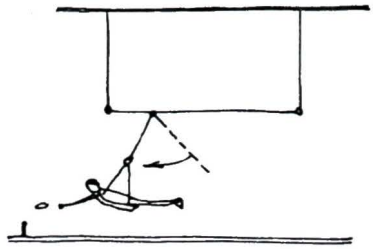
In Diagram 1 of Figure 6.9, a representational cross-section demonstrates how the use of clerestory lighting has left wall space for fixed features. Most of these features were built-in to the building structure during the period of contractural completion. The fixed features include comprehensive sets of wall bars to which other pieces of equipment are attached for specific therapeutic purposes. For example: space dividers, panels, sloping boards, platforms, steps and slides. Additionally, overhead grids have been suspended over part of both therapy areas which facilitate various clip-on devices (as indicated in Diagrams 2 and 3).

The non-fixed items which are used in both areas comprise a variety of loose, soft, flexible, mobile and functional objects. Some of these have become virtually standard items and are used for a wide range of purposes (for example: ramps, steps, perambulation aids, etc.). Other items however, are introduced or improved upon, according to the individual requirements of the children, as indicated in the accompanying diagrams (Figures 6.9 and 6.9A).

The therapy zone is divided into three units and these are: physiotherapy, occupational therapy, and hydrotherapy. Normally the physiotherapist attends to the development of gross motor and fine motor



CROSS - SECTION, Diagram 1.



throwing rings on spike

Diagram 2.

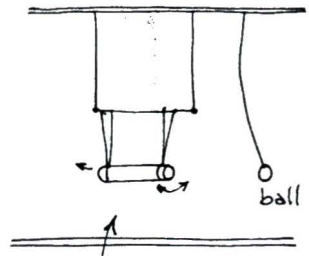
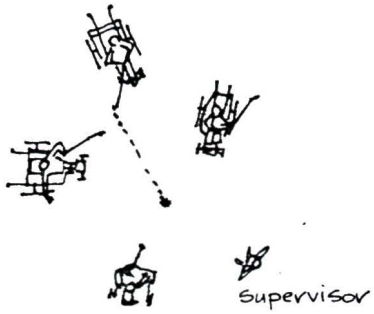
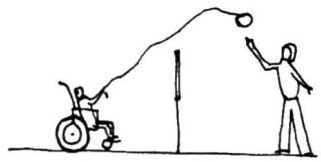


Diagram 3.

FIG. 6·9 Physiotherapy.

1. Wheelchair hockey (plan).

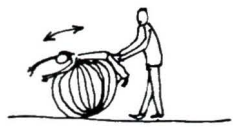


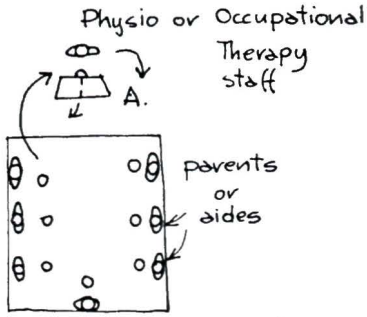


2. Volleyball

3. Crawl through tube

4. Air filled ball





5. Parents with children session

6. The mirror

FIG. 6·9A Therapeutic activities diagrams.

co-ordination skills, spatial perception and physiological concerns; whereas the occupational therapist concentrates mostly on activity itself as a means of overcoming or helping to cope with a multiplicity of disabling problems (Gunn, 1975). Some of the therapeutic activities which were observed during the research period are indicated in Figure 6.9A. Again, from the structured research in respect of these activities, design-relevant-information was elicited. The range of activities has become a useful tool in the facilitation of co-operation, co-ordination and stimulation as well as physical development. The combination of desirable effects is particularly evident in the various games which are indicated (for example, volleyball and wheelchair hockey). The 'crawl through tube' (number 2) is very simple as a device, but quite complex when considered in developmental goal or in design-principle terms. Examples are:

- development of mind-body co-ordination
- development of perception
- textural-tactile awareness
- exploration and discovery
- prospect and refuge
- development of environmental competence

Numbers 4 and 5 (of Figure 6.9A) are used by the occupational therapist and the speech therapist. The latter uses the mirror for identification and naming games (for example, me, Jennifer, nose, eyes and so on). In the sessions which utilize interaction techniques, the participation of parents is encouraged.

Number 5 indicates a small group participating in an awareness and

development program. During this session, each child is seated with a parent, or a helper. Each child in turn is encouraged, by the therapist, to look through a panel in a screened box (A) and is subsequently introduced by name to the group. This is followed by singing and clapping. These fairly simple sessions are appropriate for the development of:

- social skills
- peer interaction
- speech training and development.

Additionally, the sessions offer the parents an opportunity to assist in their child's development in a functional manner. Finally, the use of the giant ball (number 3), promotes physical co-ordination and balance. The types of disabling characteristics of the children who participated in one or more of these activities are indicated in Table 6.1.

Sometimes the therapists arrange a small activity sequence utilizing (for example), a ramp, a bridge, steps, a balance beam, and possibly other components. An example of this is shown in Figure 6.9.1.

The 'play-learning' aspect which is demonstrated in this small arrangement was expanded upon and used in various ways in the design for the centre. Several levels of development and control may be discerned in this small model.

Primarily, the model demonstrates the value of a continuum of movement and also, the manner in which different objects or features may be linked for an optimum effect.

Secondly, the model demonstrates the utility of what Moore (1979) has termed 'paced alternatives.' The top platform may be reached by a variety

Table 6.1

Range of disabling characteristics of children attending therapy sessions

Physical Handicaps	Perceptual-Intellectual Disabilities	Socio-Emotional Disabilities
Orthopaedic handicaps	General mental retardation	Social and emotional development
Neurological impairment	Speech and communication impairments	Behaviour disorders
Motor and Perceptual-motor disabilities	Visual limitations	
	Hearing limitations	
	Specific learning disabilities	

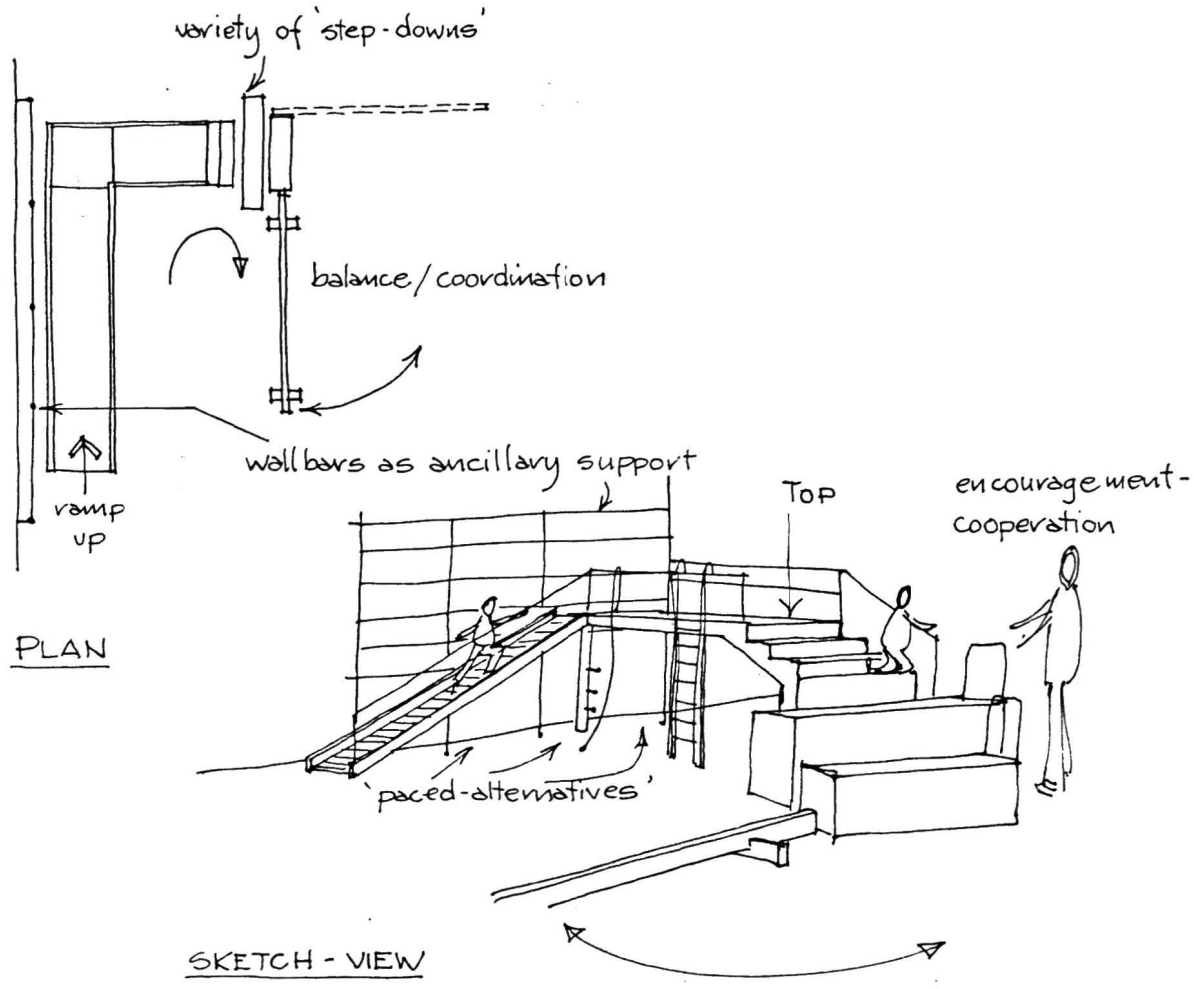


FIG. 6·9·1. Activity sequence in physiotherapy

This flexible unit can be described as an integrative-design-element. It also demonstrates Moore's principle of paced-alternatives.

of means, which can be ranked in terms of difficulty.

Thirdly, the objects may be used in more traditionally therapeutic ways: for balancing, bouncing, swinging and so on. This type of model, which may be arranged in several different ways and used as a component of a larger complex, may be described as an integrative-design-element. Design elements are discussed in full in Chapter 8 (Forming the Design Model).

Opportunities for participant observation were confined to the hydro-therapy area, where the author was able to participate in a 'swimathon.' The event had been staged before as part of the annual fund raising drive. It was intended that part of the funds raised during the 1981 session should go towards the play-learning centre. In this respect, it was recorded that once again, a use of different levels would be helpful to both child and helper at the transition stages (that is, pool deck into pool and vice versa).

6: The Classrooms

On plan (Figure 6.4), the classrooms are similar as spatial units. However, the activities in each classroom vary and therefore the internal arrangements are different. During the time that research was being carried out, the classrooms were categorized as: daycare, pre-school, junior and senior. These are again sub-divided according to individual programs and skill levels. Two rooms on the north side of the complex were chosen for the purposes of the research program.

Typically, each classroom is divided into several areas. The central-activity zone is surrounded by various nodes, instruction areas, teaching

aids and furniture. The layout of one of the classrooms, which is shown as set out during the research period, is demonstrated in Figure 6.9.2. During the course of the group instruction sessions, the central activity area, which is indicated in the plan, and the section (Figure 6.9.3), was utilized for this purpose. Throughout the course of these sessions, co-operation and interaction were encouraged. However, physical movement was generally reserved for free-periods.

During free-periods, it was observed that most of the children in each group move around continuously from one action node to another. This was true of virtually all children regardless of individual disabilities. Typically during the sessions, passive-retreat type activities were alternated with more overt types of action, such as rocking and swinging, rearranging objects, individual and group games with toys and manipulating loose materials. During spontaneous group activities, evidence of co-operative and supportive action was observed and recorded. For example:

- co-operation in moving or placing materials;
- passing objects (wheelchair-bound children were often passed objects by less disabled children);
- group project, e.g. making a model with loose materials;
- helping with cutting out, pasting, mixing paint, etc.

As a general observation, examples of co-operative action did not include the mentally handicapped, whose actions were sometimes difficult to understand. Yet, friendships that had developed between mentally handicapped and physically handicapped children, had fostered mutually supportive or co-operative attitudes.

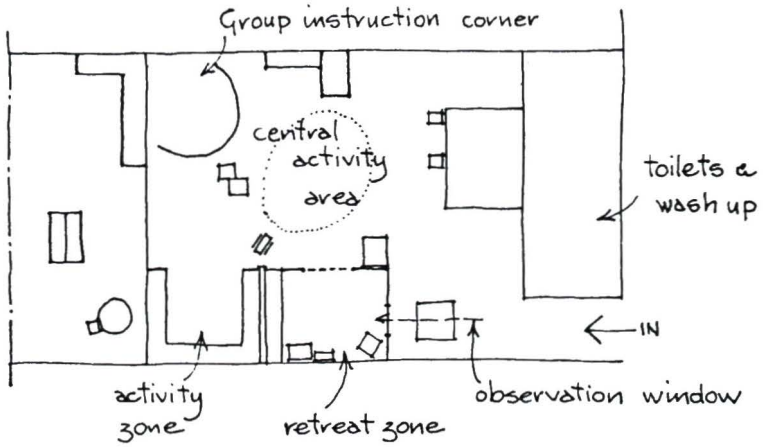


FIG. 6·9·2. Plan & layout of classroom

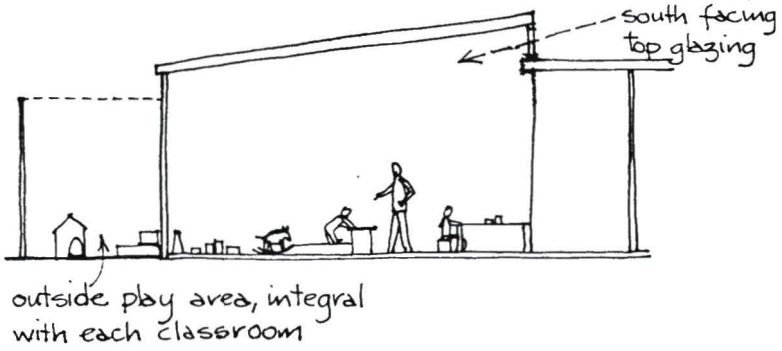
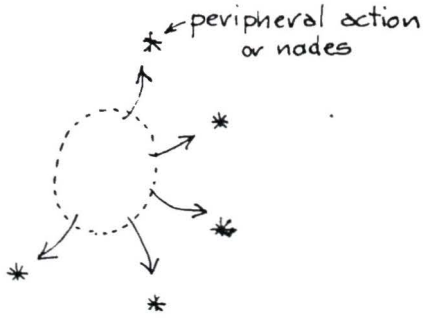
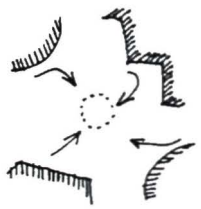


FIG. 6·9·3 Section through classroom

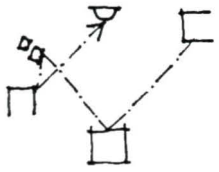
FIG. 6·9·4 Layout effects diagrams



(i) Centrifugal effect



(ii) Centripetal effect



(iii) Progression of activity

Observations in the classroom were taken during both instruction and free-periods. For structured observations the author sat quietly in a corner of the room. The teacher sometimes used a corner of the room for informal interaction or for reading which typically would involve about half of the attendees. The other children would use one of the nodes shown in the plan whilst such sessions were in progress. Quiet play with models and 'soft' objects, and passive activity was encouraged by the staff. Also, the retreat zone on these occasions was usually occupied by an individual child.

During free-periods, several behavioural effects were noted with respect to the internal arrangements of the classroom. Such effects had already been noticed in the preliminary research at BBMC. Because of this, the observations were considered important design criteria.

First, the use of the central area (Figure 6.9.2) can produce a spinning-off effect to peripheral nodes. This has been described as a centrifugal effect and is demonstrated in diagram (i) of Figure 6.9.4. Alternatively, when the peripheral nodes are fully operational, the opposite or centripetal effect might be produced. This is represented in Diagram (ii). Finally, in the classroom layout, a corner activity zone is shown (Figure 6.9.2.). This corner node is often used for individual or small group projects with loose materials. For example: small wooden shapes, cardboard and paper, large but lightweight blocks, various toys and other items. The shelving, boxes and low level storage cabinets in this area are used as part of the play equipment while also retaining their functional purpose.

7: The Outside Areas

The relevant outside areas at GRPC are indicated on the site plan (Figure 6.2). These areas may be divided into three separate types, which are demonstrated on the plan. They are:

1. The grounds area to the immediate north-west of the building. This area extended along the old boundary between GRPC and QAH to the eastern end of the site, until the amalgamation of the two establishments was finalized.

2. The existing hard play area, used for supervised tricycle riding.

3. The enclosed spaces which are integral with individual classrooms. Accessible only from inside the building, these spaces are little used except in warm weather when they afford convenient supervision for informal activities. The enclosures on the north side are also in constant shade. However, the non-use of the spaces even during the hottest days was attributable to their boxed-in effect and the lack of any outlook. On several occasions the author discovered children trying to look through the overlapping slats in the fence (Diagram 2, Figure 6.9.5).

Most of the observational research was carried out in No. 2 zone. The observations were recorded during morning and afternoon breaks, lunch-times and at various free times. As in most play sequences, the events which take place can be described as active or passive. On several occasions however, the passive pursuits were linked to the activities. For example, some of the children liked to watch others on tricycles from vantage points, or would be taking time out from similar activities.

In the plan of this zone (Figure 6.9.6), the central hard-play

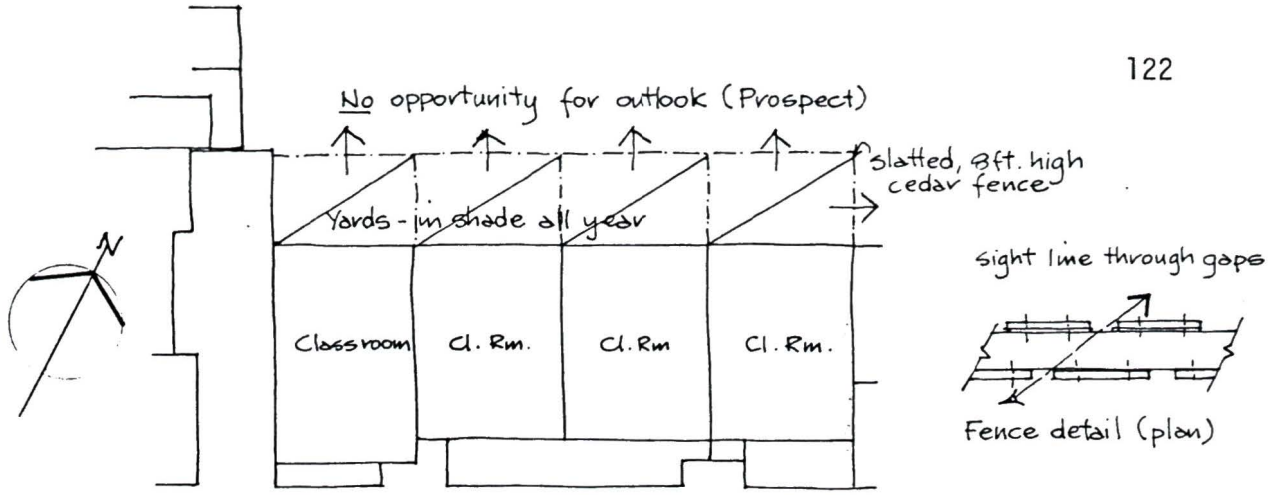


FIG. 6.9.5 Diagram 1. Part-plan of north side classrooms and integral yards.

Diagram 2.

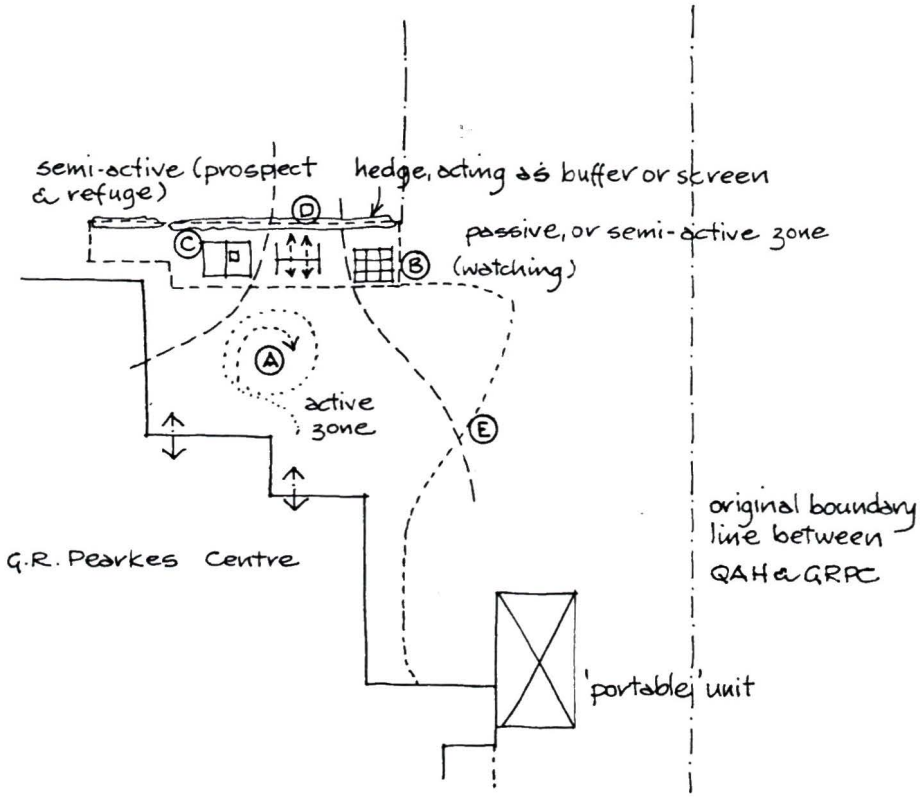


FIG. 6.9.6 Zone 2. Part of outside areas at GRPC.

area A is the nucleus of the activity environment. The passive onlookers at B, E and to some extend D are linked to activity A. Only C is an activity which is carried on independently of the others.

In their selection of preferred activities, some of the children are given assistance by teachers' aides, volunteers, other less-handicapped children, and sometimes parents. However, this kind of assistance does not affect the general activities which take place. In the situation as observed, the jungle gym B was an elevated vantage point. The station was used by children to watch activity A as well as to develop gross motor control and to socialize. The swings D were used intermittently by aides with children who (for the most part) were unable to swing unaided. These children enjoyed watching the central activity from their moving viewpoint. Children on the grass verge E participated in passive or social interaction with others, whilst some individuals waited their turn on one of the tricycles (on days when these were in demand).

The playhouse C was often used as a place of retreat by individuals, or for quiet play by small groups. It was noticed that the playhouse could be used as a place in which to hide or from which to 'peer out' surreptitiously. In these circumstances it was described as a place of prospect and refuge (Appleton, 1975). Finally, with regard to the children riding tricycles, it was ascertained that approximately fifty percent were not capable of operating the pedals, yet had devised alternative propelling methods, such as various forms of 'scooting' action. In this case, had special tricyles been specifically provided for those unable to use the pedals in a normal manner (as shown in Chapter 3), this might have had

the effect of producing two classes of rider.

The observational research program was conducted at GRPC and BBMC, with most of the program being undertaken at the former. The two components of each study were structured research and participant observation. Together they formed the methodology from which the pertinent design-relevant-information was elicited (see Appendix 3). The following chapter uses this information to establish the design priorities.

Chapter 7

Design Priorities

1: Preliminaries

In order to identify the design priorities necessary for the execution of the design model and the first design concept, a comprehensive list of design principles was set out. The principles were extrapolated from the design-relevant information which was derived from the research programs as described in the previous two chapters. The developmental goals were provided by the medical personnel from both centres and the GRPC planning committee with additional input from other staff members, teachers, psychologists and parents. Supplementary and supportive material was found in the literature (Moore et al., 1979; Sandhu, 1976). When the design principles were used in the matrix (Figure 7.2) with the developmental goals, it was possible to identify the most important design priorities. The evolution of design principles and developmental goals are described in Sections 2 and 3.

2: Design Principles

Some important principles emerged during early planning stages of the project, often advocated or underlined by teaching staff and physiotherapists at GRPC. The theme of a continuous progression of activities was one of the first principles to be accepted. This was later referred to as 'interconnectedness' (Barton, 1980). Built-in safety was another design principle which was unanimously endorsed. The principle of safety was, however, difficult to define and it is now apparent that approaches to the provision of safety vary enormously. In general, the agreement

which was reached at the programming stage in respect of safety was that too little attention to safety factors would put children at risk. Alternatively, an obsessive attitude would negate much of the play-learning experience.

The third important factor which was considered at the early programming stage was to provide equal opportunities for the children, regardless of their physical abilities. In other words, all children should be given an opportunity to gain access to important 'places' throughout the centre. The design implication would be to provide a range of access possibilities from easy to fairly difficult. Moore (1979) has termed this principle 'paced alternatives.' The design-relevant information which evolved from the research is set out in Table 7.1, which also shows where the corresponding observations took place.

Ten design principles were derived from the information shown in Table 7.1, and were then correlated with the terms that Moore (1979) has used. Table 7.2 illustrates this correlation.

Table 7.1

Design Relevant Information from Collected Observational Research (Appendix 3)

Design-Relevant Information to Emerge	Observations at
- Socialization factors and opportunities for co-operation	GRPC, Sections 3, 4, 7 BBMC, Section 3
- Interaction with adults as well as peers	BBMC, Section 3
- Non functional use of functional setting	GRPC, Section 4
- Flexibility, open and closed environments, continuity, negotiating environmental components	GRPC, Section 4
- Changing the environment, use of materials (loose parts)	GRPC, Section 4, 5, 7
- Passive, retreat type activity	GRPC, Section 4, 6, 7 BBMC, Section 2, 3
- Interaction with animals	GRPC, Section 4, 7
- Opportunities for exploration of sub-areas	GRPC, Section 4 BBMC, Section 3, 4
- Micro to macro settings; easy to difficult tasks; use of movable units; hard and soft units and components; interconnectedness; equalizing opportunities	GRPC, Section 5
- Natural areas, separate enclosures and settings for relaxation (parents, staff and children)	BBMC, Section 3
- Opportunities for ongoing projects, group projects, especially with loose or movable items	GRPC, Section 6 BBMC, Section 3
- Hard-surface areas, pathways for tricycles, plus: other transportation modes to be investigated	GRPC, Section 7 BBMC, Section 3

Table 7.1 continued

Design Relevant Information from Collected Observational Research (Appendix 3)

Design-Relevant Information to Emerge	Observations at
- Opportunities to observe activities, visual links as well as physical ones. Complementary zones, peripheral action, use of buffers	GRPC, Section 7 BBMC
- Places to hide, retreats and lookouts	GRPC, Section 5, 7 BBMC, Section 3
- Use of different levels for access to features, standing child; wheelchair bound child; adults	GRPC, Section 5, 6 BBMC, Section 2
- Use of platforms, cut-outs, pits	BBMC
- Multiple function features	BBMC
- Soft areas, built-in or with materials	GRPC, Section 5 BBMC, Section 2
- Opportunities for role-playing activities	BBMC
- Units and components at proper scale	GRPC, Section 5 BBMC, Section 2
- Accessible units for gardening, a separate zone, but part of overall scheme	BBMC
- Tactile-textural environment. Facilities and experiences for partially sighted and hard of hearing	BBMC
- Incorporation of topographical features, for landscaping and child-oriented use	BBMC
- Attention to year-round outside play concept. Covered areas and use of planting for weather screening in winter, shade in summer	BBMC

Table 7.2

Development of Design Principles

	Moore's Terminological Equivalents
Continuous progression of activities. Interconnectedness	Continuity and branching
Safety factors	Challenging environments (without undue risk)
Equalizing opportunities	Paced alternatives
Adventure playground-Workyard component	Loose parts
Spatial diversity and awareness	Variety of 3-dimensional spaces
Passive-retreat areas Alternative exits	Retreat and breakaway points
Hard and soft zones Natural areas, 'garden'	Ambiguous to defined settings
Mini to meso environments. Open and closed environments. Simple to complex settings. Child-scale facilities	Range of social scale
Flexibility in system Environmental cues	Image ability and orientation
Successful negotiation of environmental components	Clear accomplishment points

The ten design principles were discussed and agreed upon by the GRPC special projects committee.

3: Developmental Goals

As Moore (1979) has pointed out, when the speed of development is much slower or much faster than the norm, then one or more concepts of exceptionality must be considered. However, in terms of an approach to environmental design, it is not necessary to identify the appropriate medical problem, but to determine which goals are most applicable to groups of exceptional children.

The research period at GRPC and BBMC, together with observations at other centres (see Appendix), permitted the formation of a preliminary list of developmental goals. These goals were discussed with staff at both centres. Other goals were then added and some of these were altered as the programming developed.

The developmental goals which were used in order to establish design priorities are set out in Table 7.3.

During the programming stages of the play-learning centre, other, more general goals were suggested by the administrative staff. In most respects these goals were similar to the 'aims and philosophy' of the Handicapped Adventure Playground Association (HAPA) in England. These aims were (and still are):

- To make provision through the medium of play, for disabled children and young people, with mental, physical or emotional handicaps including those of vision, hearing and perception.

- To evolve, establish, develop and maintain (adventure) playgrounds especially designed to give enjoyment as well as sensory-motor training to the handicapped.

- To enable interested persons to gain first hand experience of the emotional or therapeutic advantages provided for the handicapped in creative play (Adventure Playgrounds for Handicapped Children, HAPA, London, 1978).

Table 7.3

Developmental Goals

Muscles (large)	→ Gross Motor
Muscles (small)	→ Fine Motor
Continuous movement	→ Locomotion
Co-ordination	→ General and Specific
Environmental control	→ Manipulation, communication
Exploration and Discovery	→ Experiential
Co-operation, Socialization Language	→ Communication
Self-image	→ Ego
Awareness	→ Perception

Added to these generalized goals was the theme of providing a centre for the play and learning activities of all children. This is implicit in an integrative approach.

4: Developing Priorities

For the purpose of developing design priorities for the play learning centre at GRPC, the design principles were cross-matched with the developmental goals, as shown in the matrix (Figure 7.2). Initially however, copies of Moore's matrix (Moore, 1979), were distributed to members of the GRPC project programming committee so that their familiarization with the process might be possible (Figure 7.1). The accepted tabulation was as illustrated in Figure 7.2. Using this instrument, developmental goals were read off against each design principle. The programming committee ranked each selected priority as indicated below:

3 Important correlation

2 Fairly important correlation

1 Correlation to be considered

The numbers above were allocated to each priority as it evolved. Each design principle was assessed with respect to each developmental goal and rated in terms of importance. The implications of all design principles were explained and examined and the final order of rated priorities were as illustrated. In this manner the most important design principles were:

1) Workyard Zone (22 points)

2) Successful Negotiation (18 points)

3) Equalizing Opportunities (16 points)

NOTE:
The developmental goals and design-principles set out in this example will not necessarily be those used for the thesis case study.

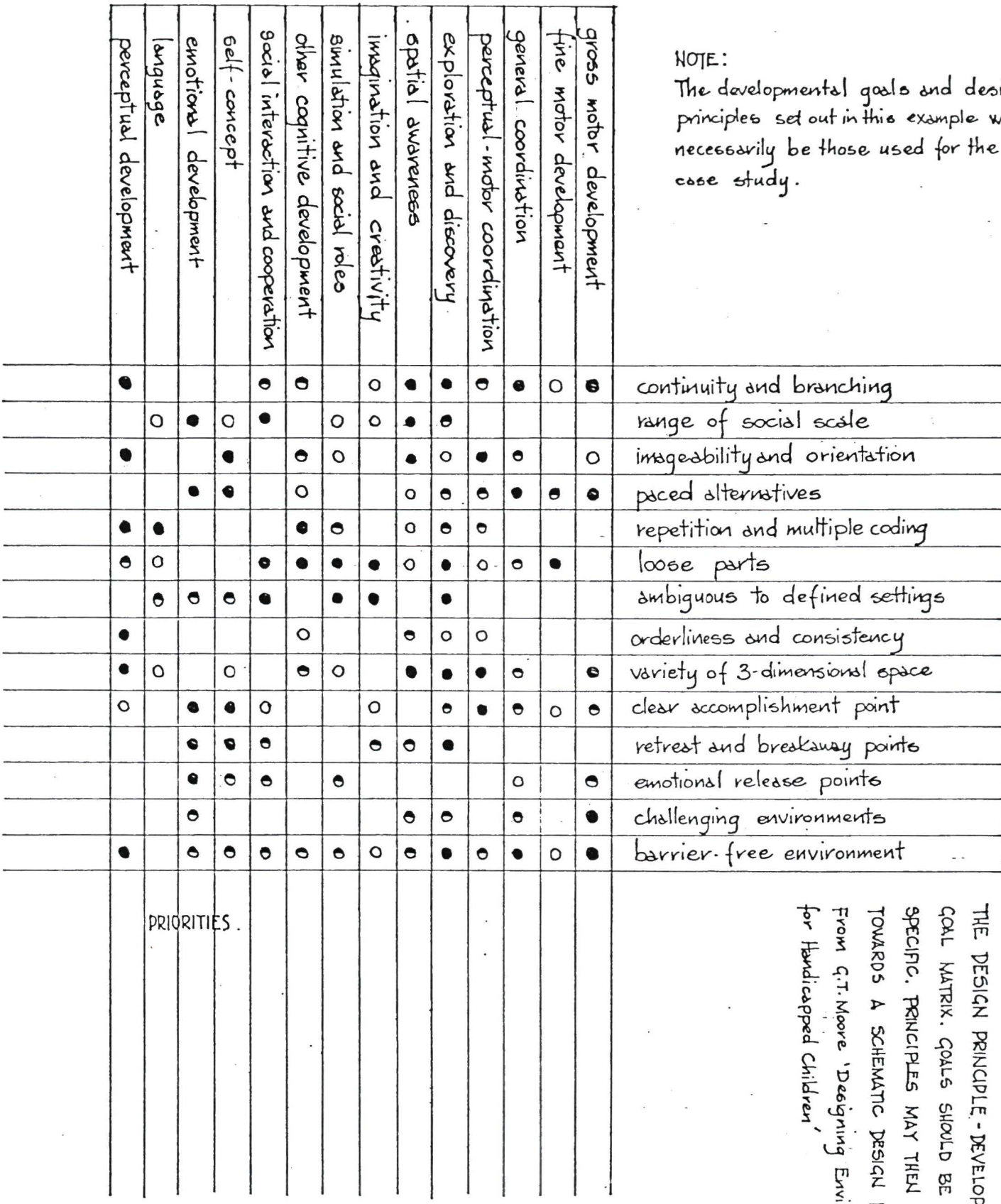


FIG. 7·1

THE DESIGN PRINCIPLE - DEVELOPMENTAL GOAL MATRIX. GOALS SHOULD BE PROJECT-SPECIFIC. PRINCIPLES MAY THEN BE SELECTED TOWARDS A SCHEMATIC DESIGN PROPOSAL.
From G.T. Moore 'Designing Environments for Handicapped Children'

Figure 7.2

Design Principle-Developmental Goal Matrix

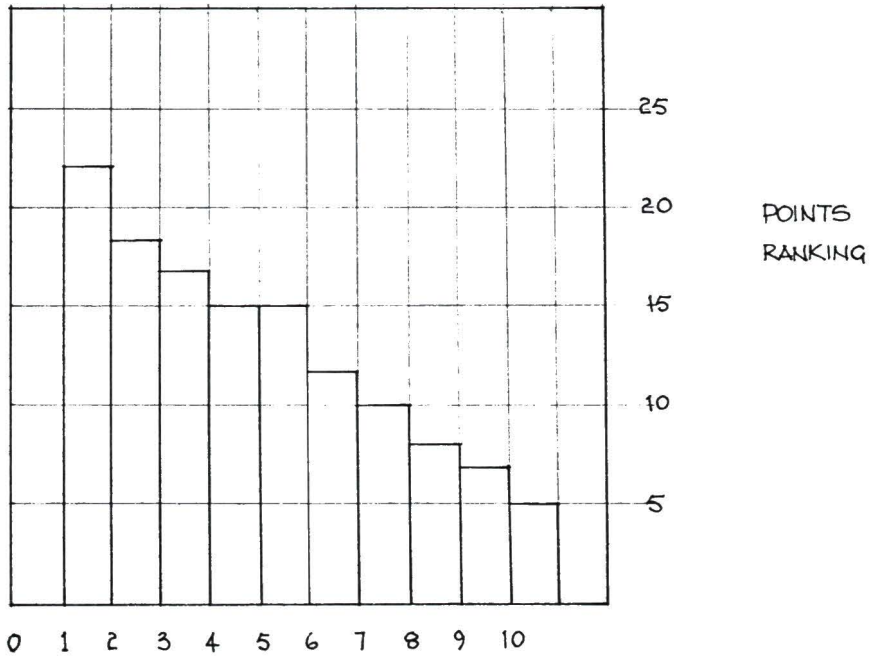
Priorities identified for GRPC Play Learning Centre

PRIORITIES		Imagination - creativity	emotional balance	perceptual awareness	communication development	exploration & discovery	control (changing environment)	movement coordination	muscles (small) - fine motor development	muscles (large) - gross motor development	
5	15	●		○	●			●	◐	●	progression of activities - interconnectedness
10	6		○					○	○	◐	safety factors
3	16	●	●		●	◐	●	◐			equalizing opportunities
1	22	●	◐	◐	●	○	●	◐	●	●	workyard zone
6	11	◐		●		◐	◐	◐			spatial diversity & awareness
7	10	○	●	●		●					passive - retreat areas
8	8	○	●	○				◐	○		hard and soft areas
9	7	◐		◐	○					◐	child scale: simple to complex settings.
4	15	●	●	◐		●		◐	○	○	environmental cues and flexibility
2	18	◐	○	○	◐			○	◐	○	successful negotiation

● 3
◐ 2 Points
○ 1

Figure 7.3

Design priority ranking from 1 to 10



Other important priorities were:

4) Environmental cues and Flexibility (15 points)

5) Progression of Activities. Interconnectedness (15 points)

6) Spatial diversity and Awareness (11 points)

7) Passive-Retreat areas (10 points)

Figure 7.3 shows the design priority ranking in order of importance as determined. The design priorities were used to form the design model, which is described in the next chapter. First, the relevance of Moore's RPDE process is explained.

5: Research-Programming-Design-Evaluation process and summary

Moore et al.(1979), are responsible for outlining the RPDE process which is, in turn, based on the work of Alexander et al.(1977). The process, which is illustrated in Figure 7.4, operates in a cyclical manner. In many instances, the research component will include some evaluation of existing 'models.' Conversely, evaluation will include research methodology. When there are no existing models for evaluative purposes, a 'state-of-the-art' investigation may be undertaken, as with the GRPC play-learning centre. The research and programming resulted in the identification of design priorities. These priorities were then used to assemble the design outline. This is demonstrated in Chapter 8. As applied to the GRPC programme, the RPDE process has included the following:

1. Research	Information gathering; parameters for study; observational research; contemporary evaluation of relevant situations; interviews and discussions with staff, teachers, aides, therapists, medical professionals and specialist consultants; investigations of site and neighbourhood; review of relevant literature and current philosophy.

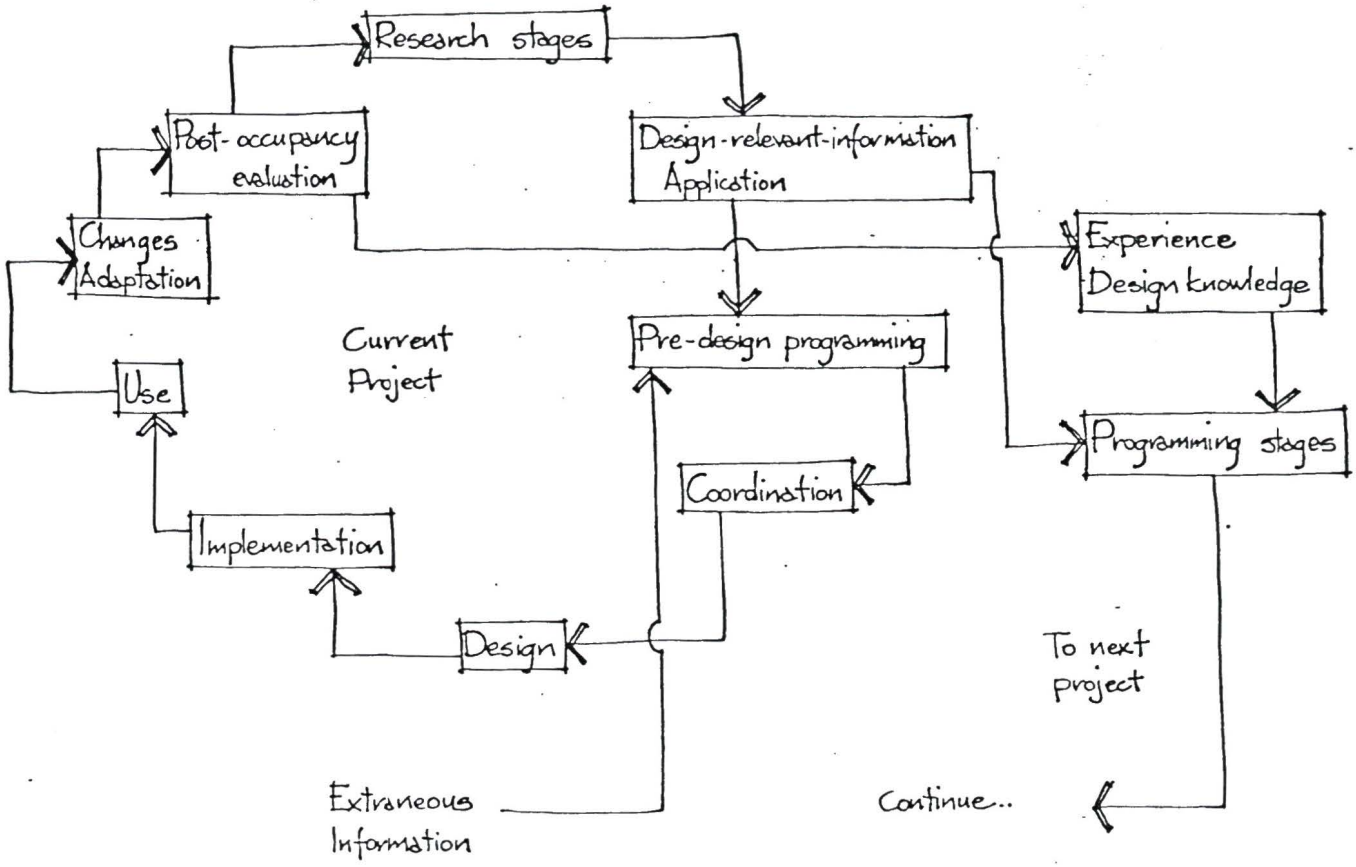


FIG. 7.4 THE R.P.D.E process: Research / Programming / Design / Evaluation.

Adapted from: Designing Environments for Handicapped Children
Gary T. Moore et al, 1979

2. Programming	Organization of information; structured research program; review of methodology and theoretical constructs; participatory planning and identification of developmental goals; emergence of design principles in respect of user-requirements; identification of priorities from matrix.

The importance of identifying appropriate developmental goals has been underlined in the preceding chapters, as they have obvious repercussions in successfully producing design principles and priorities. The RPDE process is a progressive one which commences with organized research. From this, user-requirements are translated into a design mode. The participatory planning sessions produced design principles which were used in the matrix (Tables 7.1 and 7.2). The priorities which emerged from the matrix were utilized in the assembling of the design model. The design outline is demonstrated in Chapter 8.

Chapter 8

Forming the Design Model

1: Outline

The three most important design priorities which were identified in Chapter Seven were:

i) Workyard zone

ii) Successful negotiations

iii) Equalizing opportunities

These three priorities together formed the nucleus of the model. With such a nucleus, four others were added to form an outline arrangement using the first seven priorities. A symbolic arrangement in the form of an abstract conceptual model is shown in Figure 8.1. In this figure, the first three priorities are shown as a linked nucleus.

During the programming stages for the play-learning centre, the author was concerned about the challenges of an outside environmental design. In this respect R.C. Moore's model of Ideal Childhood Ecology (in Wilkinson, 1980), was useful. In terms of (play) environmental requirements Moore has related diversity to ecological principles. The principles are: adaptation and change in the environment, diversity, and the interrelationships between these two. Figure 8.2 demonstrates these interrelationships. The arrows indicate two-way action

> ... Since children can manipulate their environment, all relationships are potentially two-way [double-ended arrows] (Moore in Wilkinson, 1980, p. 58).

From this juncture in the design program, Moore further describes the process under 'making places,'

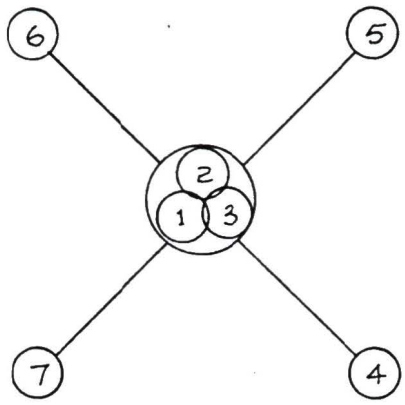


FIG. 8-1. Abstract conceptual model with first seven design priorities

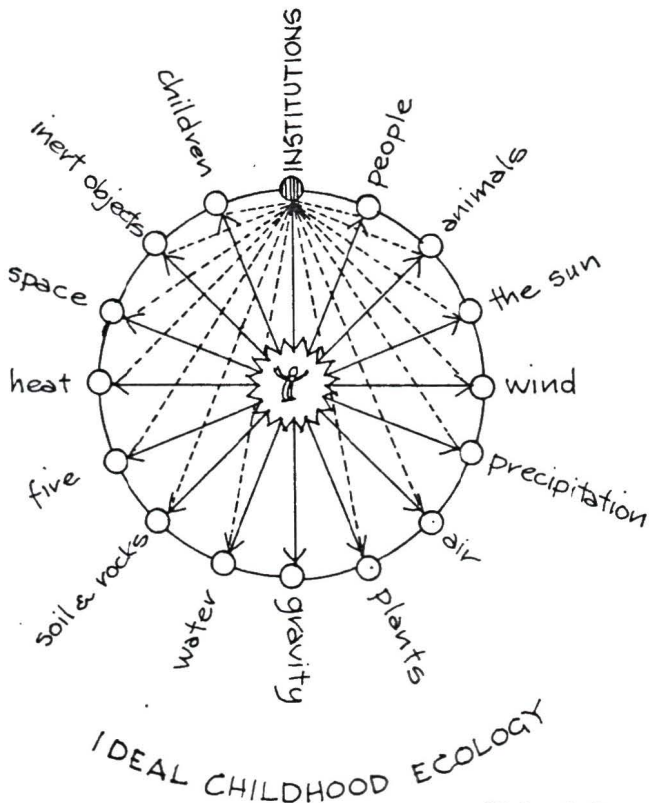


FIG. 8-2. Adaptation and change in the environment. Access to diversity of resources to stimulate adequate play & learning behaviour.

from: Moore, R.C. Generating relevant urban childhood places (in Wilkinson, 1980)

> The task of design is to bring about all that has been discussed up until now, down to earth, figuratively and literally. It has much to do with making places, or rather creating appropriate support conditions so that places can evolve (pp. 58-59).

The four variables which are generally acknowledged as place-making components (Moore, 1977, 1980; Hart, 1979) have been identified as:

Fixed features	Spaces and permanent accoutrements
Loose parts	Objects, materials and 'things' that can be manipulated (or moved around)
Natural phenomena	Manifest properties of the environment (e.g. the weather)
Populations	Groups of human and non-human inhabitants from the surrounding community.

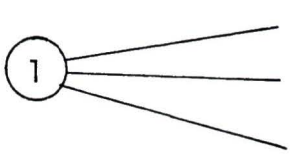
To briefly comment on these variables: the meaning of fixed features needs no further explanation and the term loose parts has been described several times throughout the text. Natural phenomena includes all the seasonal changes together with day to day climactic variations. Also, gravity must be considered as a condition (Moore, 1980), as this condition has obvious importance in balancing, jumping, carrying and so on.

At the time of writing, the non-human population at GRPC is confined to natural species such as indigenous birds, insects and local frogs (and the GRPC dog, described in Chapter 6). Eventually however, the play learning centre is expected to house rabbits, goats and perhaps a pony, in a mini-farm area.

2: Design Elements

In Section 1 the three most important priorities: Workyard, Successful Negotiation, Equalizing Opportunities, were placed together as a nucleus

in a thematic diagram (Figure 8.1). The next four priorities, in their ranked order were shown as satellites connected to this nucleus. In this section, all ten of the priorities which were identified were divided into three elements. From each design element, most of the information necessary for incorporation into the overall scheme may be derived. Each priority contains three design elements which are identified and explained below.



Workyard

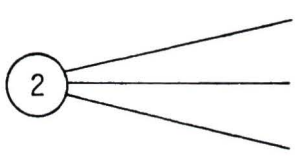
(a) Must be accessible to maximum number of children, and barrier-free

- May be buffered from other components, if they are conflicting.
- Should be visible from centre at "overseeing stations."

(b) Access (in part) determines location. Should be near several important features. A balance between a physical-action area and passive-retreat zone.

(c) Determinants of size. Examples: Number of users at one time, ratio of size of workyard to overall site and available space.

Note: Preliminary description: a pleasant place where loose parts may be manipulated, or utilized for spontaneous or ongoing projects. A storage area may be needed for tools together with materials.

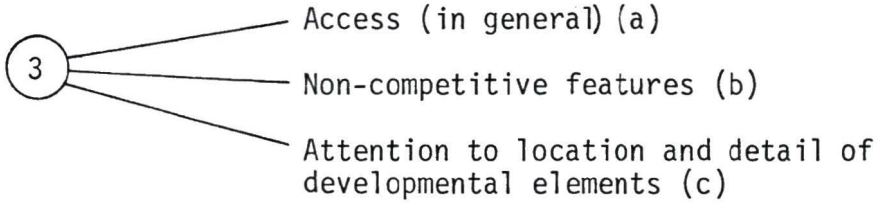


Successful Negotiation

(a) Attention to user dimensions, ages and range of exceptionalities to be considered. Wheelchair access to key points (spaces).

(b) In overall scheme, a progression of activities. Some easily negotiable elements may be in visual proximity of complex ones.

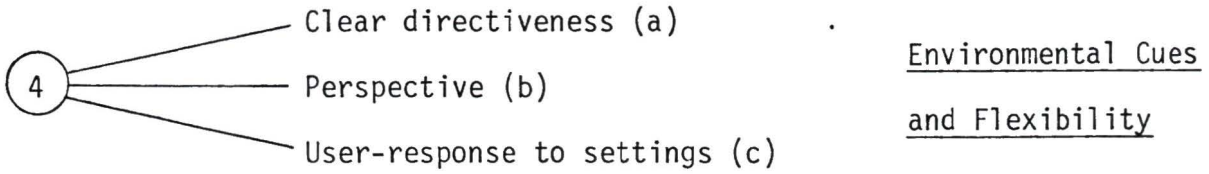
(c) Optimizing opportunities for relevant goals. Features (say) three easy, two fairly difficult, one or two complex.



(a) Alternative routes or modes to be built into design. Especially important at key 'arrival-places.'

(b) Creation of features in design which are conducive to co-operative action and balancing of user-skills.

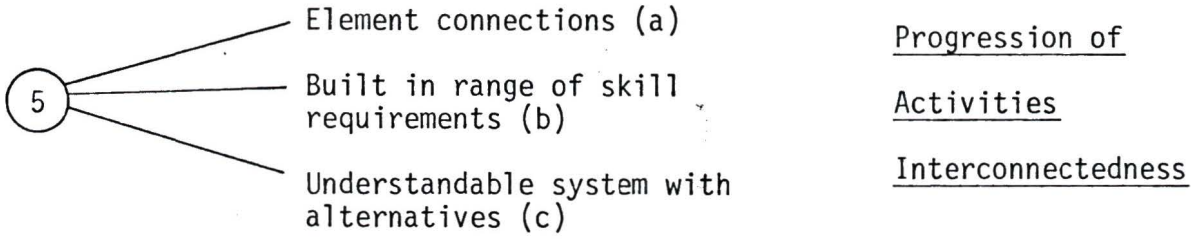
(c) Similar to 2(a). Also location and juxtaposition of elements. Very important.



(a) Complexity of sub-areas should not be at variance with children's need for a measure of orientation.

(b) Comprehensive range of spatial experiences.

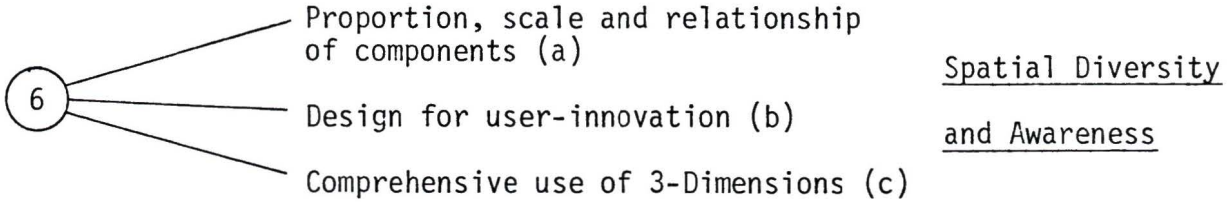
(c) Attempt to introduce multi-sensory cues, including colour.



(a) Linking of components where possible in design schemata. Clear lines of continuity.

(b) Progression of activities should be discernable throughout the centre.

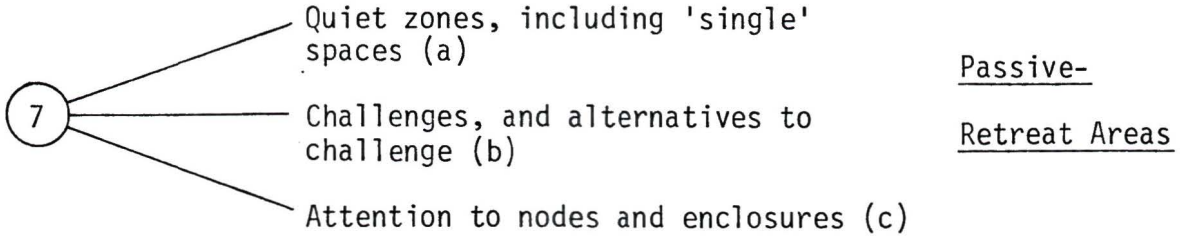
(c) Multiple choice action over linear certainty. Use of cues to prevent confusion.



(a) User scaled components and arrangements; including inter-spatial relationships plus all child-space relationships.

(b) Avoidance of one-off, function-specific items. Design to encourage creative spontaneity.

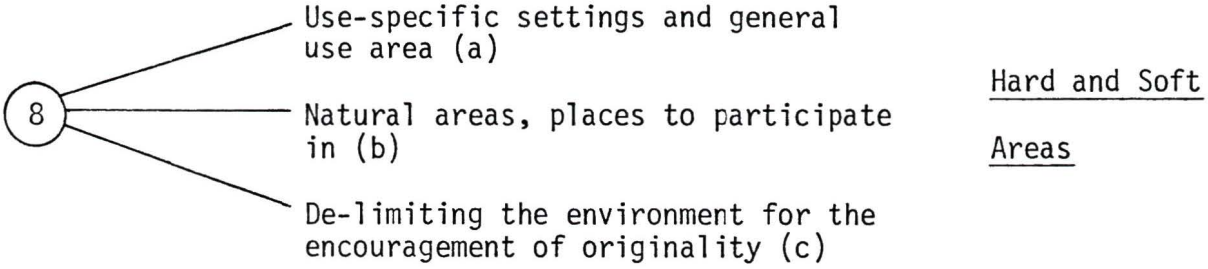
(c) Components should be comprised of a variety of spaces and shapes... within and between.



(a) Small spaces for one child to 'find himself,' and quiet places generally.

(b) Ways in which a child may extricate himself or herself from a too-challenging or stimulating situation.

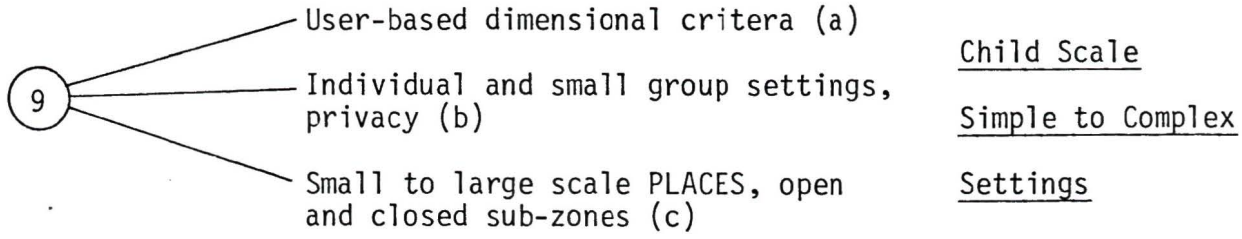
(c) Group social spaces, meeting or watching enclosures.



(a) The garden area was an early staff-generated idea. A good example of use-specific (and also equalizing). Loose parts and imaginative play areas promote creative or spontaneous developments.

(b) Open grassy areas, also includes views of natural surroundings. The farmyard is a truly participative feature.

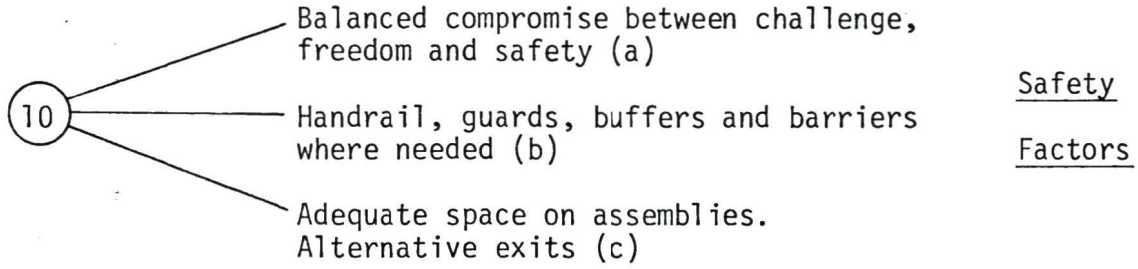
(c) Use of buffers, landscape features, for informal games areas, probably with direction from staff.



(a) Facilities for specific areas or nodes should be designed according to the anthropometrics of presumed users.

(b) Places for individual play and for small group play. Access for interaction with staff.

(c) Range of spaces throughout the centre, from very small enclosures to large open areas.



(a) Challenges which accelerate environmental competence should be encouraged, but no part of the centre should be inherently dangerous.

(b) User-based rails and barriers installed where necessary, especially on up-down ramps to components.

(c) Space to turn around. Alternative ways to leave, retreat or descend from places (including links to other places).

It should be noted that although the safety factors priority (Number 10) was apparently given a low rating, it is only thus because of the nature of the cross-matched developmental goals. The need for safety provisions was always implicit in the design of components and facilities. Child-scale was also a priority which was, of necessity, a constant.

3: The Design Process

An assessment of the design elements above produced a schematic key-element diagram, which is demonstrated in Figure 8.3. Information from the site investigation was added to this schema. In particular, the orientation of GRPC on the site determined that the play-learning centre should extend from the area to the south-west towards the eastern edge of

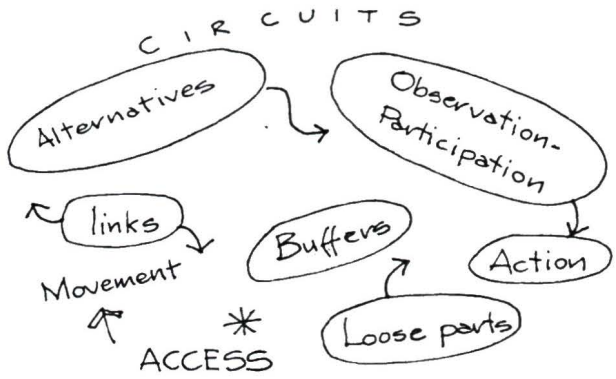


FIG. 8.3. Schematic No. 1.

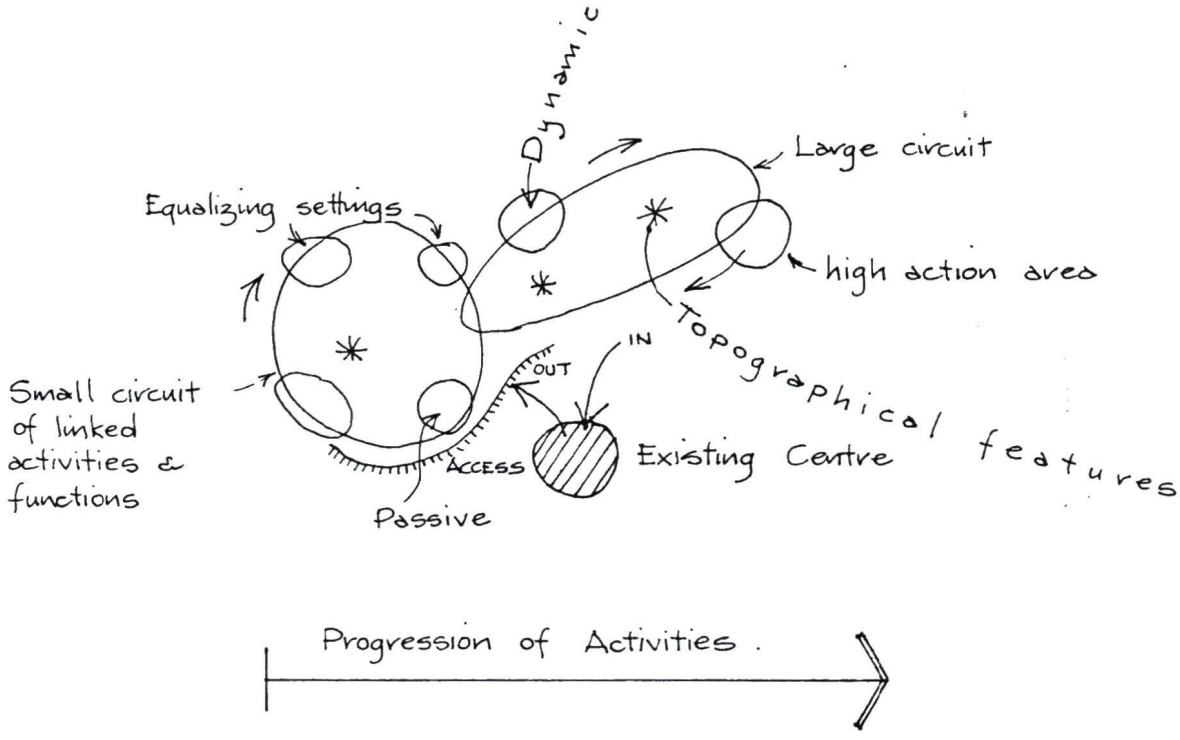


FIG. 8.4 Schematic No. 2. Site-independent 'notional' from preliminary pre-design criteria.

the site (along the former boundary line). Space availability determined an agglomeration of activities at each end of the site linked by pathways. Hence, in Figure 8.4, the genesis of a design is discernable. Two circuits are indicated in this diagram, which link various sub-centres and activity nodes. This arrangement became the basis for the ensuing concept designs. The most important points that were considered at this stage of the design program were access to the play-learning centre and egress from the existing building complex.

When the above considerations were added to the second schematic outline, the resulting configuration was as shown in Figure 8.5. This figure demonstrates the transition stage from a site-independent schematic outline to a site-specific development. The probable extent of the pathway system is indicated together with an areal delineation for some of the identified feature-components. When the first concept was being developed the original boundary fence between QAH and GRPC was still in place. The further evolution of this concept is described in Chapter 9.

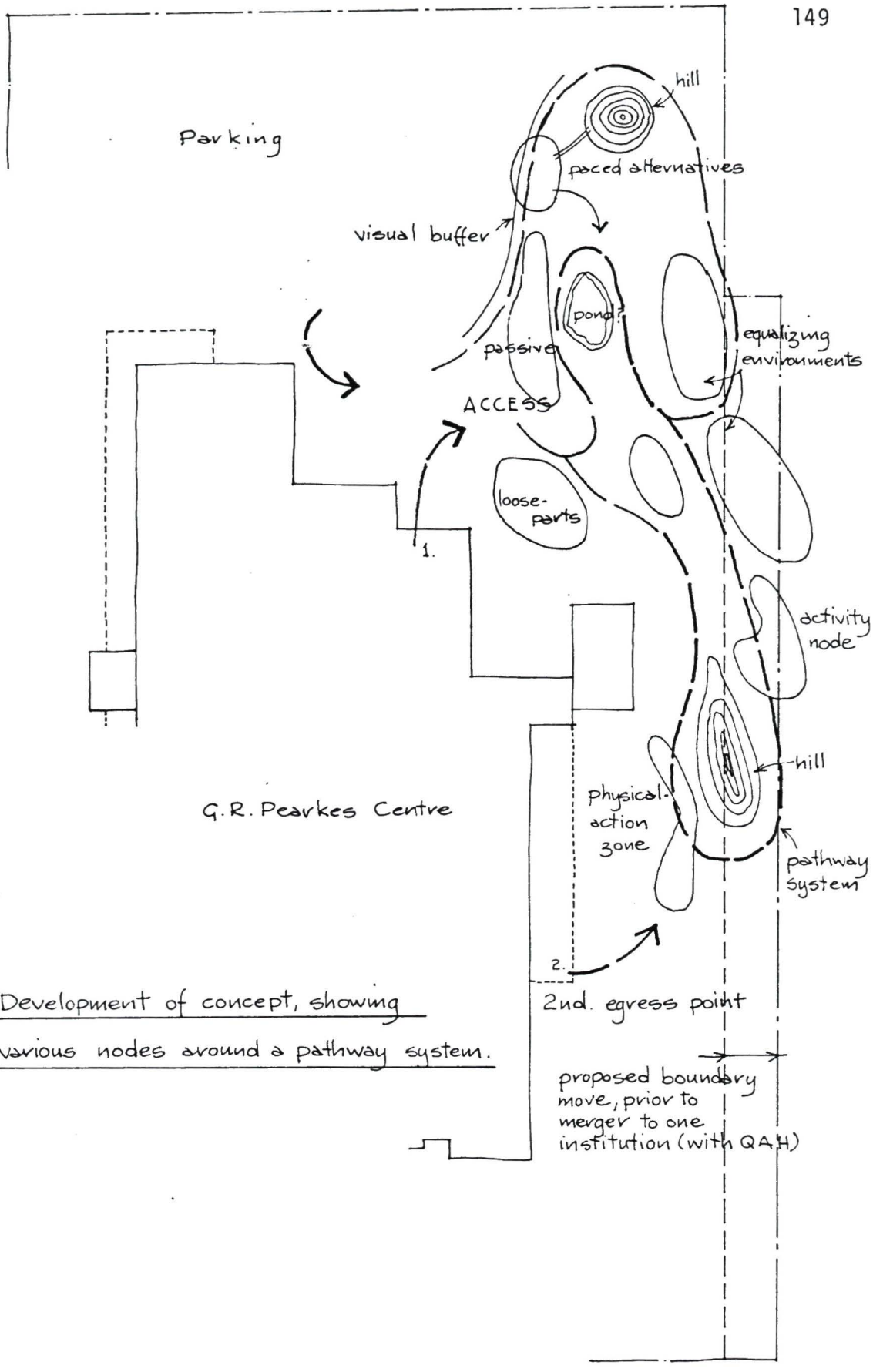


Fig. 8.5 Development of concept, showing various nodes around a pathway system.

Chapter 9

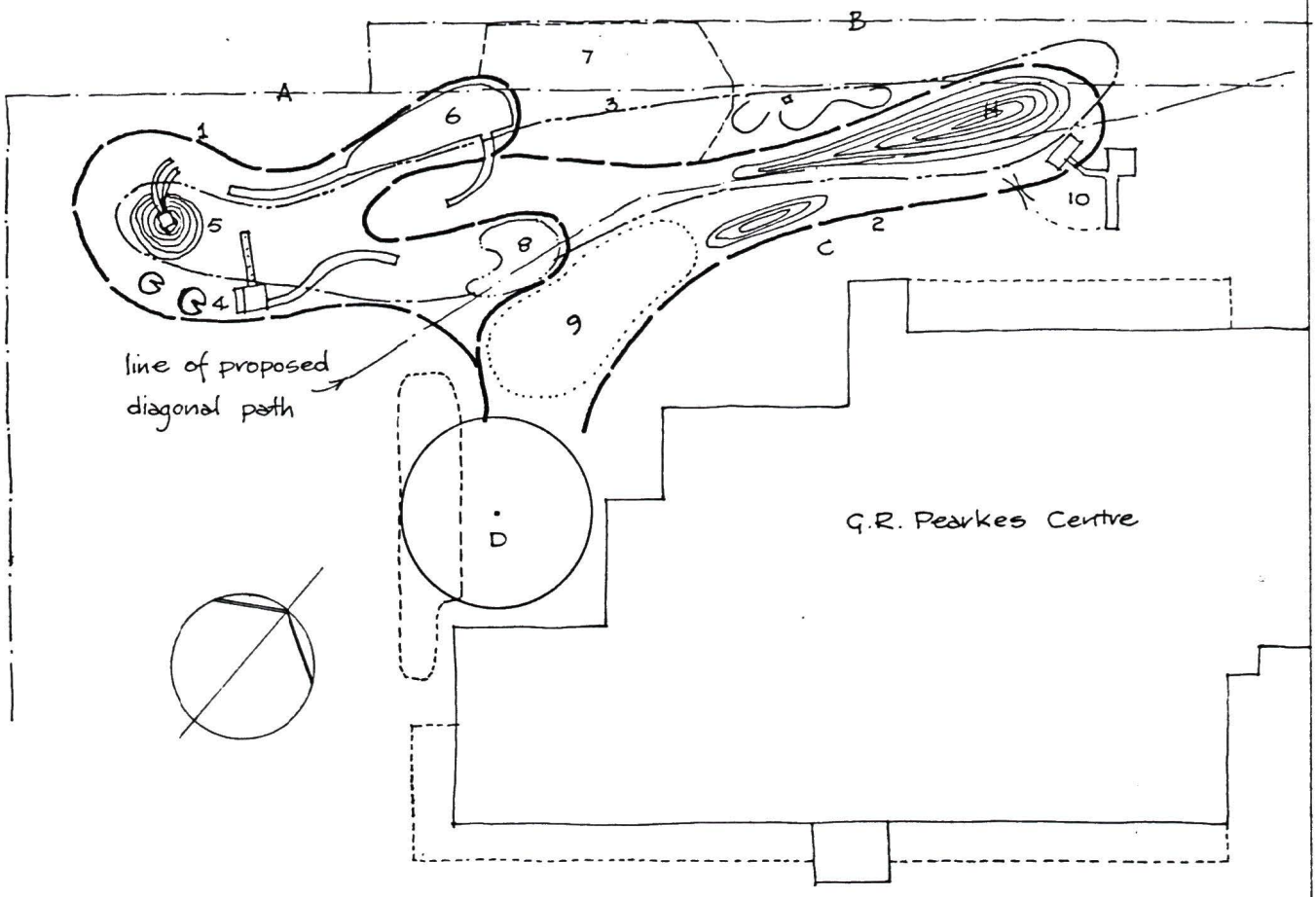
Design and Implementation

1: Design Concept

The two circuits, linking feature nodes of activity and interest, were expanded upon. The smaller circuit to the west of the layout was intended to encompass several thematic sub-areas. The thematic areas which gained initial approval with the planning committee were:

- The workyard.
- A 'Pioneer Village.' Fort structure and tepees. The fort presented an opportunity to build-in the principle of paced alternatives.
- Elevated Garden. Ramped ingress and egress. Opportunity for equalizing activities.
- Farmyard. Contact and co-operative interaction with non-humans.

When implications for the design of these components had been addressed, they were set out within the confines of the site. An idea for a conical-hill feature was added, with a slide and top platform. Access to the top was also via simple to more difficult means. During this developmental stage of the design, the pathway system was continued in a loop to the eastern end of the site. Suggestions for other activity nodes were added, as were adjustments to the existing topography. Implicit in the concept, from the outset, was the principle of a progression of activities through the centre. This is a two-fold principle in that there is a progression of links and connections between areas and sub-areas; also there is a progression of difficulty, from very simplistic activity to fairly difficult. In Figure 9.1, the outline of the first concept plan is demonstrated. The area around numbers 4 and 5 on the plan corresponds to simpler activities



KEY.

1. No. 1 circuit of path system
2. No. 2 circuit of path system
3. Water channel circuit
4. Pioneer 'village'
5. Conical hill with special features
6. Elevated garden
7. Farmyard
8. Pond
9. Workyard (loose-parts) area.
10. High activity area.

A. Original line of boundary between QAH & GRPC

B. Proposed new line, prior to merger

C. Position of portable unit

D. Soft-shell structure (indoor-outdoor feature).

Note. The site rises to the end at No. 10 (East). Additional fill was needed to create the main 'hill' at H, together with the conical hill and elevated garden.

FIG. 9.1. Outline of First Concept Plan.

and number 10 represents a more complex activity zone.

The former boundary, which divided GRPC and the Queen Alexandra Hospital ((QAH) for children was quite a serious constraint to the design layout. This site constraint was further exacerbated when a 'portable' staffroom was added to the north side of the building (shown in Figure 8.5). The siting of the 'temporary' staff facility at this time was indicative of the lack of communication within the administrative echelons of GRPC. In this case the former engineering consultant had been working independently of the play-learning centre planning committee. There were other co-ordination problems of this type which were made manifest, and which underline the nature of the situation, namely:

i) The sudden announcement of a merger between GRPC and QAH;

ii) A proposal (submitted by site planning consultants), for a pathway which would have cut diagonally across the plan. This line is also shown in Figure 9.1.

With regard to (i), although the merger between the two centres was certainly logical, the play environment planning committee was not made aware of this development until it was public knowledge. The concept design was submitted to the board of directors at GRPC for general approval prior to the announcement of a merger.

Approval was subsequently granted for the concept with the following considerations to be taken into account:

i) An estimate of cost was to be prepared for the overall scheme, to be broken down into probable cost of materials, labour and so on.

ii) List of 'special' items or services necessary.

iii) Surface treatments.

iv) Planting.

v) Possibility of phasing into two or three parts.

vi) Safety factors concerning pond, water circuit and platforms.

vii) Utility of sand areas, and 'Workyard.'

Concerning these requirements, item (i) is standard procedure, and (ii) is a resonable request for a new and innovative project. Information in respect of items (iii) and (iv) is usually asked for because of maintenance considerations. Planned phasing is usually the result of budgetary constraints and this has been the experience at GRPC. Safety factors are an expected concern in projects of this type, but the experience at GRPC was that a consensus regarding the provision of safety factors was a very difficult task. The attitudes ranged from excessively paternalistic to unconcerned. Hence, the depth of the water in the proposed pond (item vi) became a critical detail. The proposal for a water circuit was accepted with enthusiasm, although some explanation of the concept was necessary.

The utility of the sand-areas as well as the workyard, was questioned by some of the board members and parents. The first part of this questioned utility surprised the planning committee, as the use of sand and water by children has been considered elemental for many years (Piaget, 1955; Lady Allen, 1967; Moore, 1974; Sandhu, 1976, et al.). The questions regarding the workyard were less surprising and due to the fact that the adventure play concept has not been developed in North America, as described in Chapter 2. At GRPC the term workyard means developmental play with 'loose parts.'

2: Implementation

The implementation process was affected by the board's decision to phase the project, the primary reason for a phasing proposal being budgetary constraints. There are other reasons however, including the low value placed on projects which do not make money or do not fit in with expected norms. This has been the case in virtually every innovative project in which the real clients or beneficiaries are children (Lady Allen, 1967; Hutchison, 1980).

Notwithstanding these comments, the situation at GRPC determined that the play-learning centre be phased into three units. Initially, the phasing of the project was expected to extend over a period of two years, and was set out in the following sequence.

Phase I

It was intended that Phase I should include the siteworks, drainage, and the topographical features. Specifically:

(i) Setting out the main features of the plan. Earthmoving and establishing revised topography. This included using rockfill and consolidated hardcore for the conical hill and the elevated garden.

(ii) Siteworks. This consisted mostly of providing drainage for surface water; away from 'ponding' areas to soakaways.

(iii) Providing a stone wall around the base of the elevated garden. Also constructing up and down ramps.

(iv) Constructing the feature concrete wall. This wall forms the boundary to the centre at the south-west side and acts as a buffer to the parking area.

(v) Setting out and fabricating the pond.

(vi) Setting out the pathway system. Placing the finished path circuit at the western end of the site.

Phase II

Before items (iii), (v) and (vi) were undertaken, the merger between GRPC and QAC was cemented. The immediate effect of the new situation was the removal of the boundary. Also, the path circuit was extended and its form changed to that as shown in Figure 9.2. The new outline, or second concept plan was the one which was presented to the board. Phase II involved:

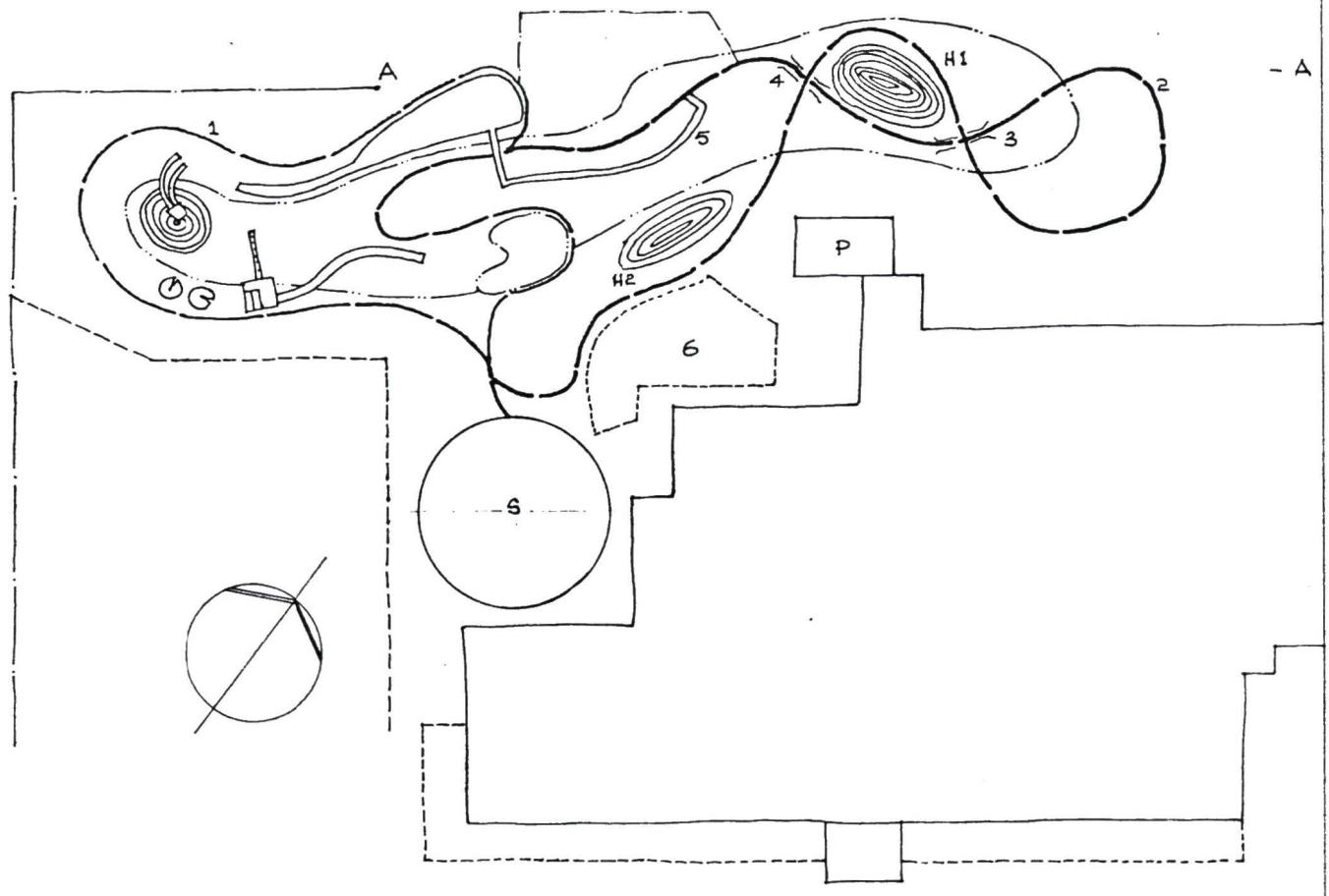
(i) Completion of pathways. Also construction of two under-over bridges. These are shown on the amended plan, Figure 9.2.

(ii) Construction of 'pioneer' fort and platform and special access ramp.

(iii) Setting out and establishing of sand-play area.

(iv) Finish conical hill. Construction of platform on top, steps, small ramp and lower platform. Originally, the intention was to have a specially made fibreglass slide which would return to the sand area. This was re-scheduled to the end of Phase III.

(v) Overhead link between conical hill and pioneer fort. This link was instigated in lieu of the slide. It also provides more interconnectedness, which is one of the major tenets of the project. Eventually, various differing modes of access were put in place, on the conical hill and on the fort. This latter principle corresponds with Moore's (1979) paced alternatives.



KEY

1. No. 1 circuit of path system (as first concept plan).
2. Revised circuit no. 2, incorporating two bridge features.
3. Bridge no. 1.
4. Bridge no. 2.
5. Revised line of down ramp from elevated garden.
6. New Workyard zone

A-A Boundary between QAH & GRPC removed.

H1. New Hill between paths.

H2. Hill 2.

P. Portable unit in place.

S. Soft shell structure (phase III).

FIG. 9.2 Outline of Second Concept Plan

(vi) Setting out for the workyard.

Phase III

(i) Setting out for the farmyard. Construction of animal shelters and enclosure.

(ii) Installation of overhead track conveyance system. This item had to be co-ordinated with a manufacturing specialist.

(iii) Creation of campfire enclosure with suspended swing-seats.

(iv) Setting out and placing of the water circuit.

(v) Linked climbing platforms and bridges at east end. These units were proposed to provide a variety of developmental play-learning opportunities. The range of difficulty would vary from easy to fairly difficult.

(vi) Landscaping of overall site. Attention to finished surfaces. Construction and placing of outdoor furniture and finalization of planting.

(vii) Soft-shell (tent) structure. This feature is intended to provide a flexible indoor-outdoor space which can be used for a multitude of purposes. (For example: loose-parts area during inclement weather, structures and equipment for therapy, exhibitions, seminars and workshops.) In addition, the large brightly coloured feature will become symptomatic of the new energy and direction of the centre.

The items set out above constituted the work expected to be carried out for substantial completion of the GRPC play-learning centre. Work commenced on the site towards the end of 1981. Most of the existing play facilities were taken down and removed, not merely because they were in the way of the design proposal, but because they had become disfunctional and unsafe. Photographs which were taken just prior to the removal of these

FIG. 9·3. VIEW SOUTH-WEST

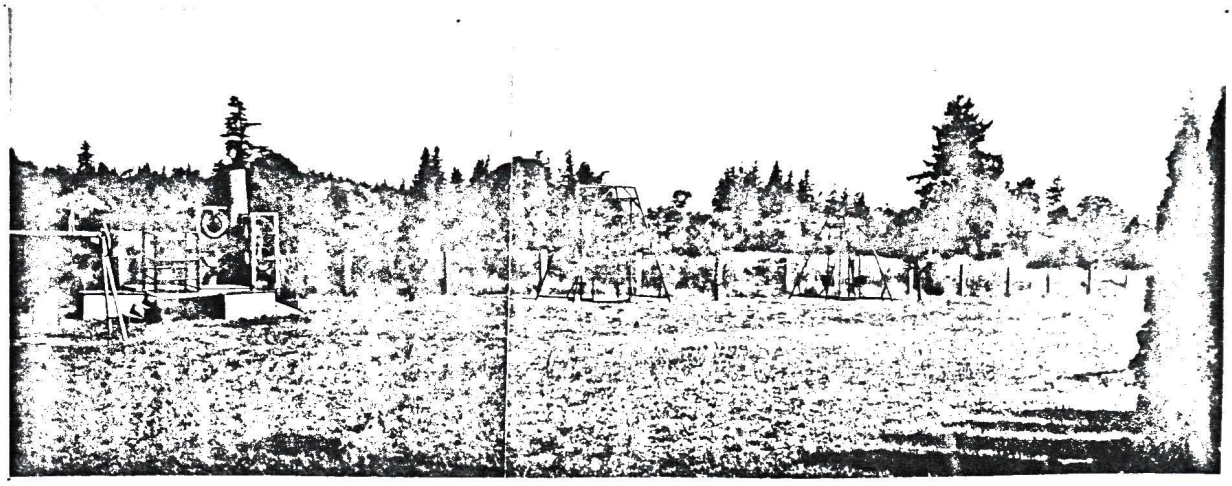


FIG. 9·4 VIEW NORTH-EAST

Photographs, taken in 1979, show the equipment before commencement of work on site.

facilities are shown in Figures 9.3 and 9.4.

The siteworks commenced with adjustments to topography in order to provide the features which are indicated on the layout design. Although only a small amount of additional fill was necessary some bedrock was required in order to provide a good base for both the conical hill and the elevated garden. By the spring of the following year, Phase II was underway and most of the items listed above were substantially completed by mid-summer 1982. Figure 9.6 shows Richard Dattner visiting GRPC with Dr. Ferguson in 1981; on the right is one of the small buses, referred to in Chapter 6. The completion of the overall project, as envisioned at the time of the first concept plan, is demonstrated in the aerial perspective (Figure 9.7).

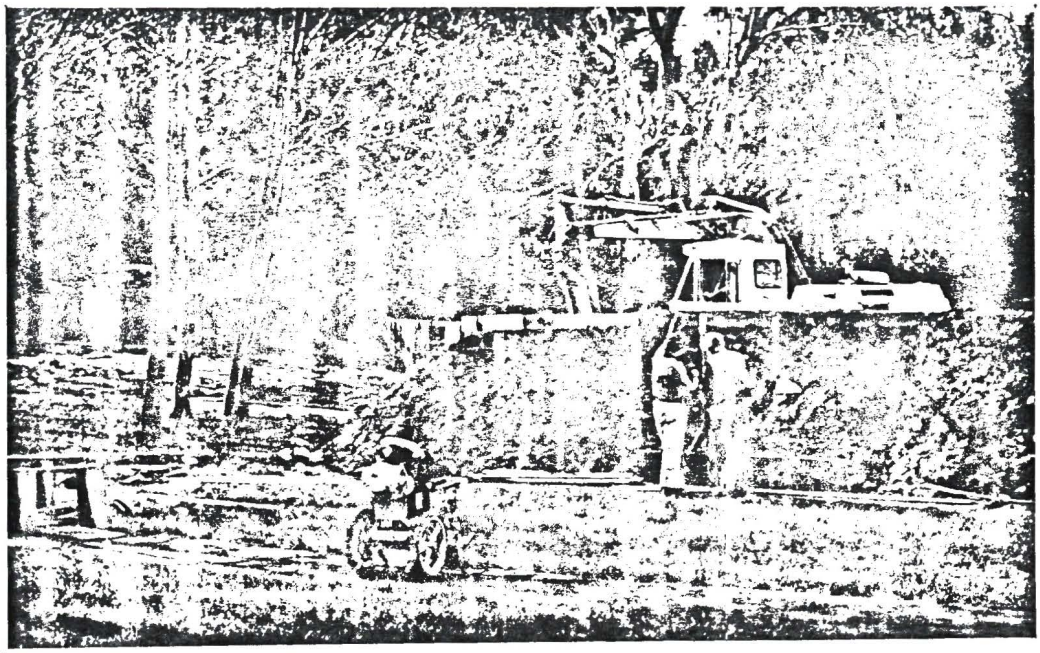


FIG. 9.5
work starting on the elevated garden, with visitor from QAH.

FIG. 9.6
Dr. Roy Ferguson with Richard Dathner at GRPC in 1981.

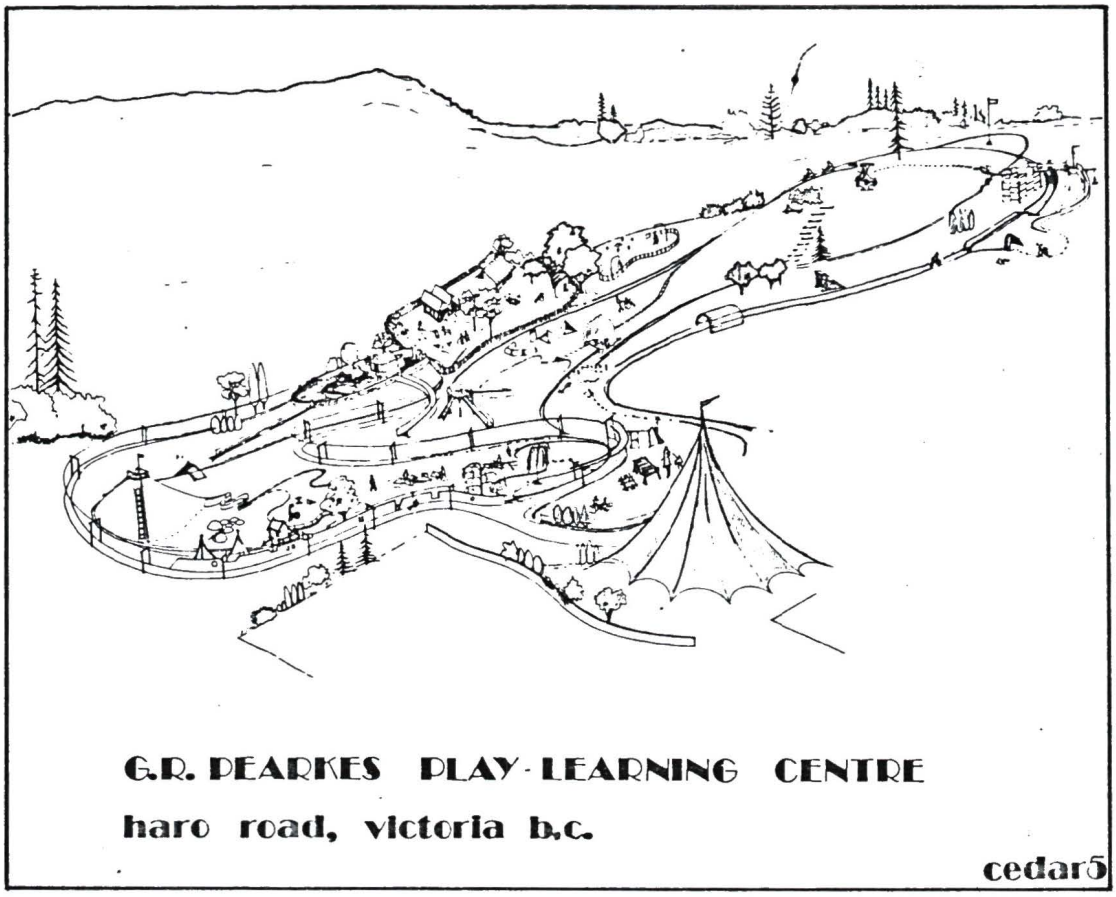


FIG. 9·7 AERIAL PERSPECTIVE OF NO.1 CONCEPT DESIGN.

Chapter 10

Conclusions and Comments

1: Project Completion

Shortly after Phase 2 of the project, and before work on Phase 3 could commence, further funding for the continuation of the project came to an abrupt halt. The reasons for this situation are complex and (nearly two years later), difficult to comprehend. Even so, the following remarks may serve to illustrate the nature of the problem:

i) The G.R. Pearkes Centre had been in financial difficulties for a number of years. Many programmes atthe centre were reliant on charitable donations (Robinson and Sheps, 1979; CRD Child Health Care Study, 1980).

ii) The completion of Phase 3 was dependent, in large part, on funding from other sources. For example:

a) International Year of Disabled Persons (IYDP, 1981). This was a federal and a provincial government programme. The GRPC project should have been ideally suited for such a programme. However, funding was not forthcoming. Investigations revealed that the reasons for the negative decision were the semi-private status of GRPC and general misunderstanding concerning the real nature of the project.

b) B.C. Lotteries Fund. The play-learning centre did not qualify for this funding as it could not be designated as an 'essential programme.'

c) Private and charitable donations.

Completion of the project in its entirety (or as originally approved

by the GRPC board and planning committee), remains a goal. Not until this stage of completion is reached will the overall interconnectedness of the project be fully appreciated. It is now five years since the inception of this project, and yet the underlying principles of the play-learning centre continue to be misunderstood. This becomes evident every time the play-learning centre is referred to as an 'adventure playground' by people who should certainly know better.

2: Continuing Work

Notwithstanding the above remarks, the research, the formulation of design principles and the gradual implementation of the design model has provided valuable and much needed information for the furtherance of this type of work. Some of this information has been used or improved upon in subsequent projects. Some comments in respect of this work are set out below.

i) Integrative Play Environment, North Vancouver Recreation Commission

The need for an outside environment for young children was identified by a committee in North Vancouver, which was set up for this purpose. The committee comprised directors from the recreation commission, planners, concerned parents and resource persons on behalf of people with special needs. The author was approached to provide specialist environmental design services for a play-development type of facility. The design programme was first to be co-ordinated with the architect who was responsible for the design of major additions and alterations to the Delbrook recreation centre (in North Vancouver).

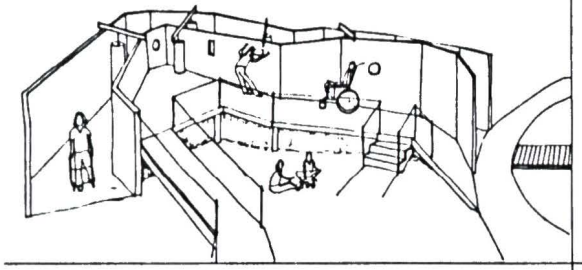
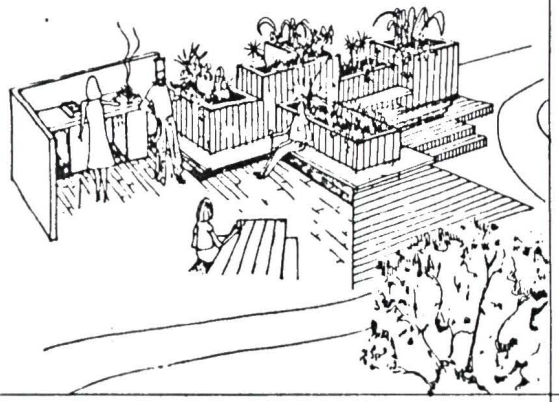
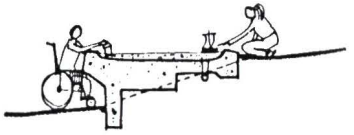
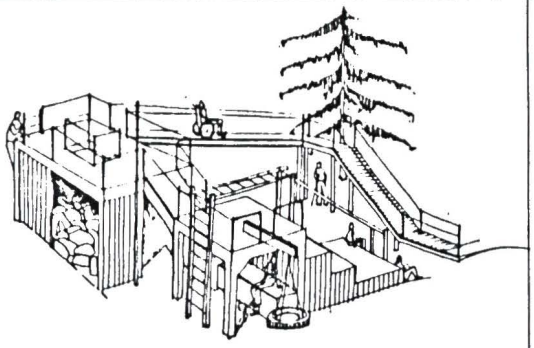
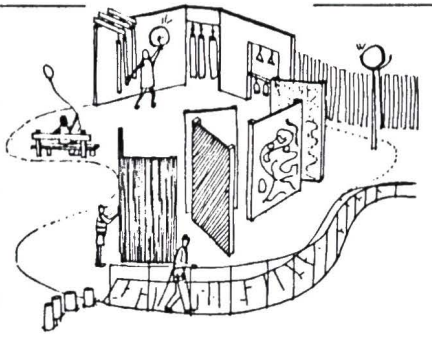
THEMATIC EXAMPLES	situation in complex	purpose - benefit	OTHER FEATURES.
	north-west corner connecting passage & feature. arrival, start, depart. ingress-egress situation with multi-level components. active & passive combination	emotional explosion area & transition zone. opportunities for prospect and refuge. development of spatial awareness. exploration & discovery.	 multi-functional storage unit in workyard.
	south-east corner at thoroughfare intersection. easy access to existing centre facilities. family & general use zone.	family and integrative involvement in play-centre. optimal social-interaction. functional, behavioural, & aesthetic node.	 pond, built into slope; provides alternative access points.
	central to activities area. between two path systems & overhead ramp.	gross-motor development. mind-body coordination. paced alternatives. opportunities for mutual cooperation. control & competence.	 textural, tactile features plus musical wall.

FIG. 10:1. REDUCTION OF NVRC ILLUSTRATIVE CHART.

Early on in the planning stages of this project, it was decided to adopt an integrative approach to the design. This decision was based on findings from GRPC, BBMC, and criteria from an ongoing project in New York (the Playground for ALL Children, described in Chapter 3).

A similar design approach to that used at GRPC was utilized at Delbrook. Developmental goals were identified along with design principles and, using a matrix similar to the one shown in Figure 7.2, design priorities were utilized to prepare an outline design concept. Once again, the overall concept was approved enthusiastically by the committee. However, the scheme had to be phased into three sections due to a lack of funding at the end of the architectural contract. As with most building projects, funding for open space, parks, playgrounds and landscaping is undertaken with contingency money. As many projects 'over run' rather than save on the contract figure, provisions for any of the above are often subjected to postponement or cancellation.

The concept design was presented to the committee, and a small group of interested persons. Various explanatory and illustrative charts were utilized to explain the nature of the design. An example of one of these charts is shown in Figure 10.1.

ii) Play-Learning Centre, Vancouver School Board (VSB)

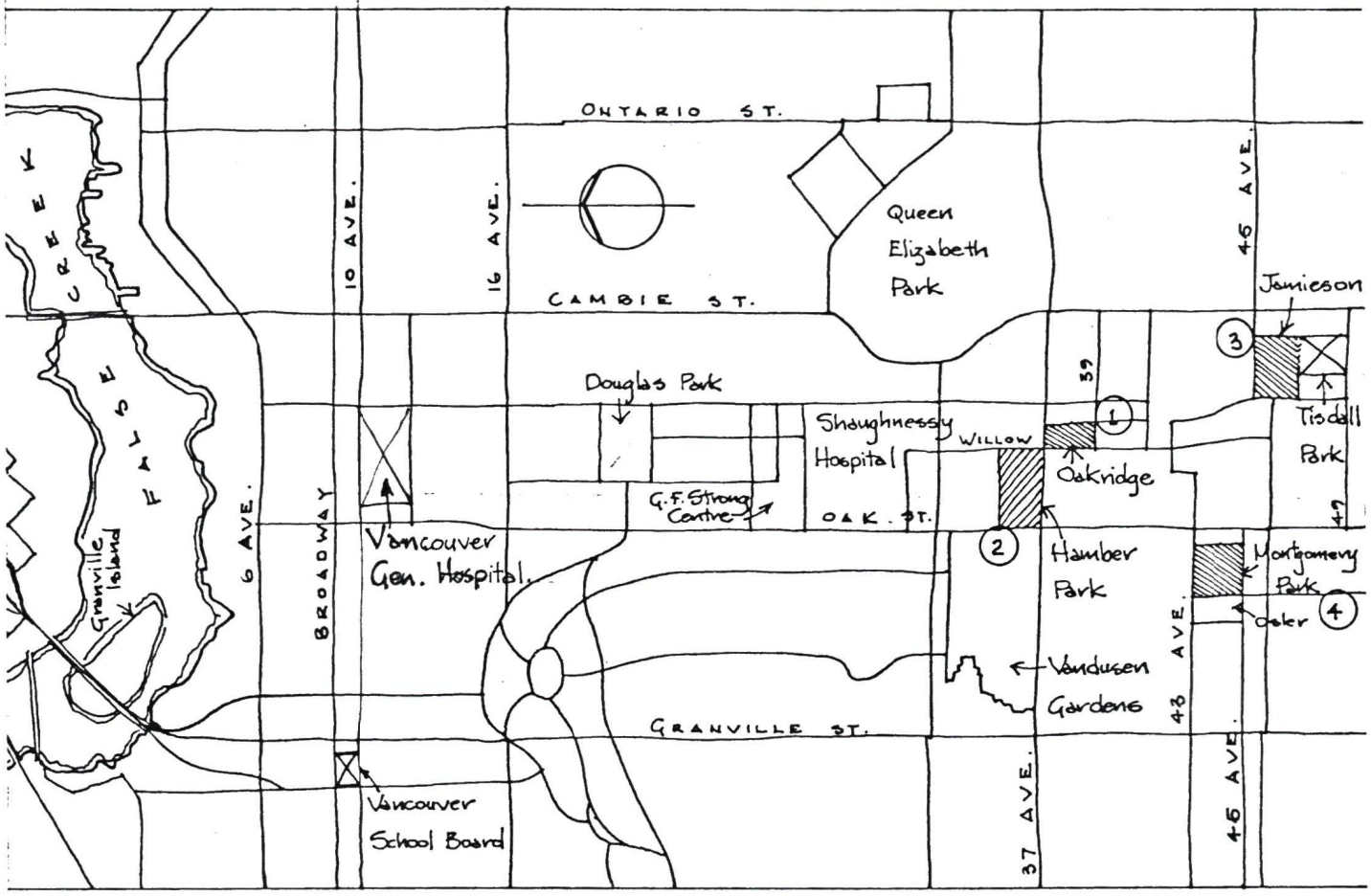
A small group was set up within the VSB to investigate the potential for a large centre, to be established within the City of Vancouver. The centre was to be regional in its function and was to be appropriate for the needs of several groups of children (Table 4.1). The identification of user groups was co-ordinated with the special education department,

with childcare professionals at Vancouver Children's Hospital, and at UBC. The development of the VSB project was primarily subject to selection of an appropriate site. One of a number of procedures for site selection was described in Chapter 3 . The parameters for choice were similar to those which were taken into account for the New York 'Playground for ALL Children' (Chapter 3). The locations of some sites which were investigated in Vancouver are shown in Figure 10.2. The parameters for choice which are listed in the figure are not necessarily in order of preference. However, the first three are certainly of great importance for a regional centre. These are: Accessibility
Transportation
Catchment Area

The furtherance of the VSB centre has (for the present), fallen victim to the political and economic climate in British Columbia. The concept and the specific proposal has many supporters and it will inevitably be constructed, even though the eventual product may not be as comprehensive as originally envisaged. The development of the project from inception is demonstrated in Figures 10.3 and 10.4.

3: Concluding remarks

Other work which is beginning to materialize is, in part, attributable to the research, design and implementation at GRPC. Five years ago, the play-learning centre was an entirely new phenomenon. The integrative approach to such facilities is continuing to expand and develop. At this stage of events, medical professionals, therapists, and psychologists, together with environmental designers are adopting a new perspective toward



LOCATIONS - CENTRAL VANCOUVER

Choice narrowed to 4 possibilities:

1. Oakridge School (37th. & Willow)
2. Hamber Park (37th. & Oak)
3. Jamieson School / Tisdall Park (49th. & Tisdall)
4. Montgomery Park (Osler). (45th. & Montgomery)

Choice Parameters: Accessibility, Transportation, Catchment Area, Area Character, Availability, Topography, Condition, Compatibility with surroundings.

FIG. 10·2. VSB PROJECT, SITE ALTERNATIVES

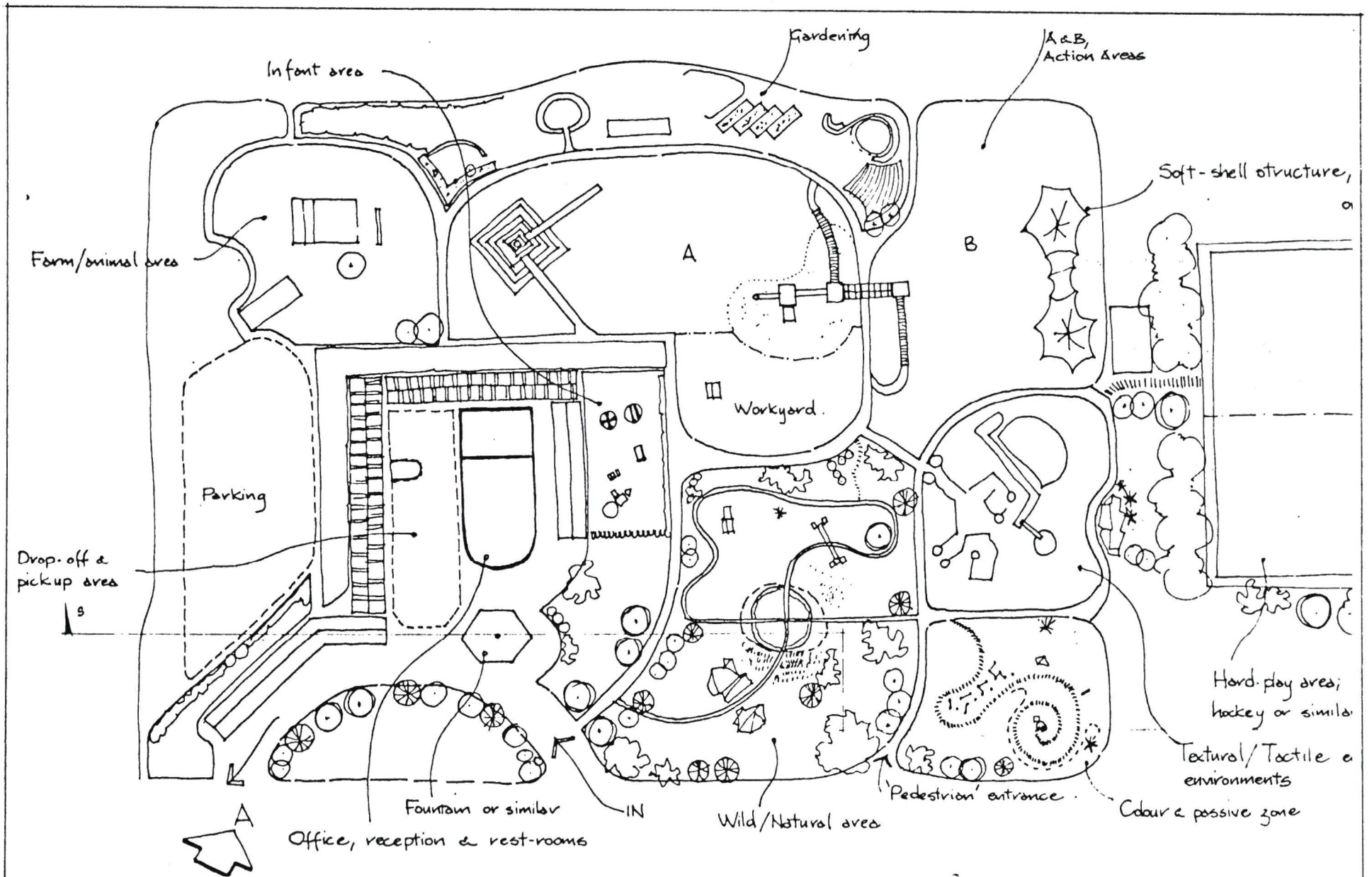


FIG. 10·3, PLAN OF VSB CONCEPT.

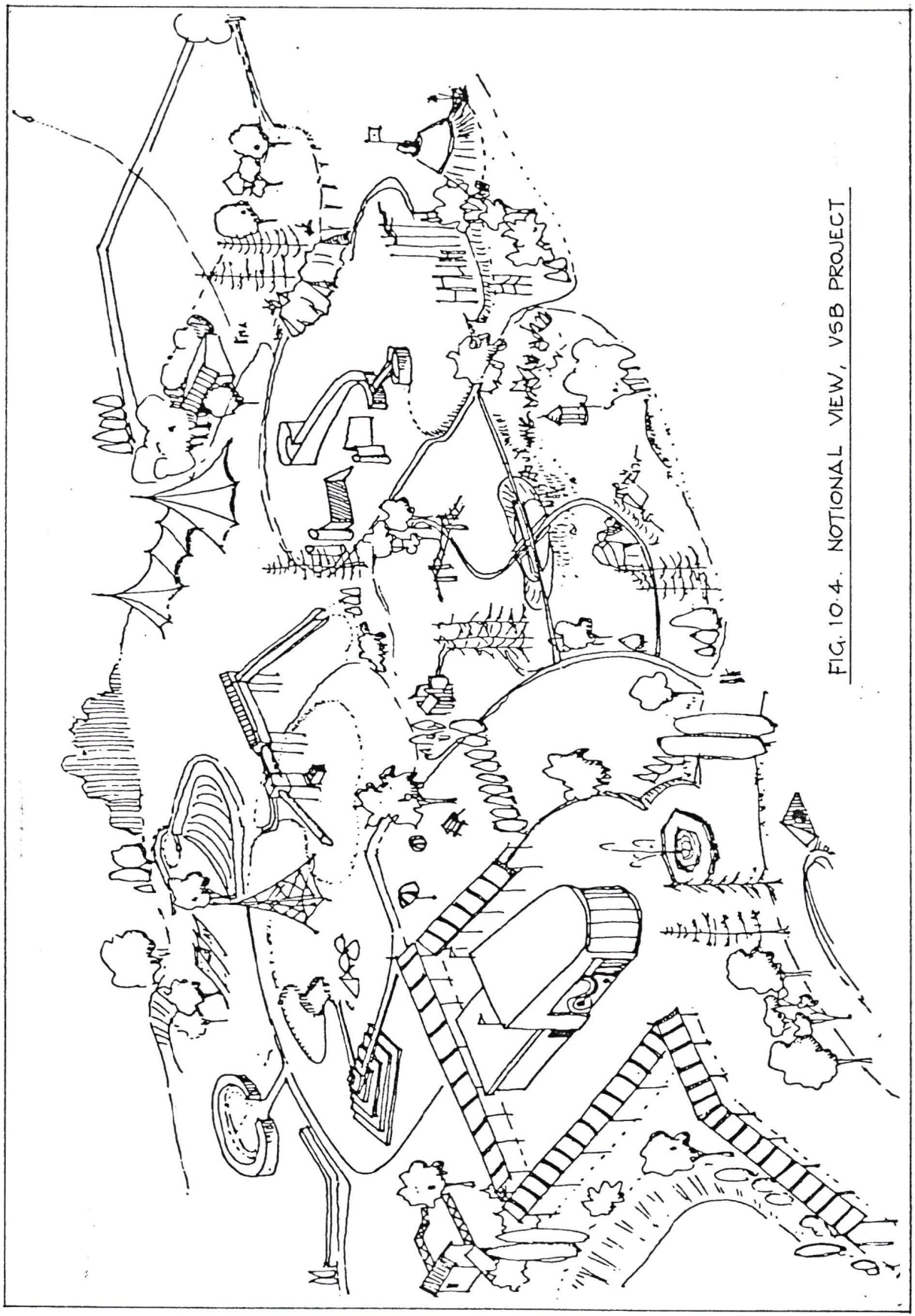


FIG. 10.4. NOTIONAL VIEW, VSB PROJECT

play-environments. Perhaps what is more important, is that this perspective is showing signs of extending into the city itself. This is what Ward et al, have been advocating for decades.

Evidence of children participating in planning and design can be seen in some recently completed community centres and shopping malls in North America. Also, as Hart (1980) has discovered there have been recent attempts at incorporating childrens' needs into housing (most notably in Barcelona, Spain). Certainly, the way ahead is to endeavour to incorporate user-sensitive environments into housing and commercial complexes. With regard to play-learning centres however, evidence of these and similar facilities would doubtlessly be much more apparent in an appropriate socio-political climate, than is currently the case.

This study has attempted to demonstrate that there is a continuing thread in the development of play settings for children. The line commences with the stereotypical municipal playground of post World War I days, and approaches the type of comprehensively planned environment which includes facilities for living, playing, recreating and educating. The research programme uncovered information which demonstrated a continuing need for integrative play-learning centres (together with an increase in inter-disciplinary communication). It is customary to suggest that more research is required. In this case however, implementation is needed, based on the research which has already been completed.

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APPENDICES

Appendix 1

Children - Participation topics and information: Childhood City Quarterly (CCQ).

No. 17 (1979). Children and Urban Open Space.

No. 22 (1980). Participation: Is it Really Happening?

No. 23 (1981). Participation 2: Projects, Programs & Organizations.

No. 24 (1981). Children in Transportation.

No. 25 (1981). Environments for Handicapped Children.

No. 26 (1982). City Farms.

Vol. 9, No. 2. Urban Wildlands.

Vol. 10, No. 2. Lessons from Australia & New Zealand.

Vol. 10, No. 4. Play.

Nos. 17 to 26 are Childhood City Newsletter issues.

APPENDIX 2

Centres visited for investigation and research, not in text:

Queen Alexandra Hospital for Children, Haro Road, Victoria.

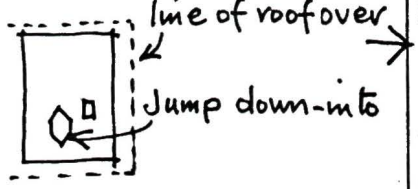
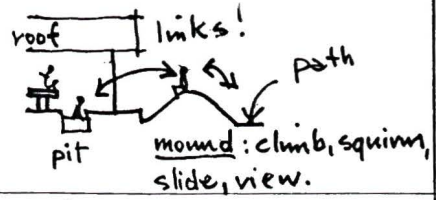
Vancouver Children's Hospital (both old and new building complexes).

Sunnyhill Children's Hospital, Vancouver.

Handicapped children in integrative school programme, Cloverdale, Victoria.

Handicapped group at play in Beacon Hill Park playground, Victoria.

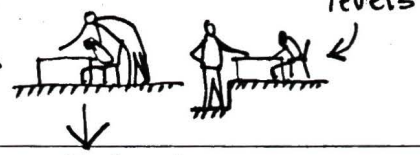
Handicapped group visiting Mayfair Shopping Centre [Victoria Handicapped Action Committee (HAC)].

DATE/TIME	25/2. 11.05 - 11.45.	
ZONE & SPECIFIC AREA	Outside Play area, BBMC.	
PARTICIPANTS	4-6 children (Integrated programme)	
DURATION		
Behaviour taking place. (Observation)	Use of Space → Requirements	Design Relevance
i) Covered Play area sand table & sand-pit & pedestal table →		manipulation, visual link between pit-table (platform)
ii) Earth mound →		each separate activity: 2-3 mins. Visual as well as physical links. (Use of foul-weather clothing)
Notes./Operative words Rain	continuous movement	topography.. juxtaposition..

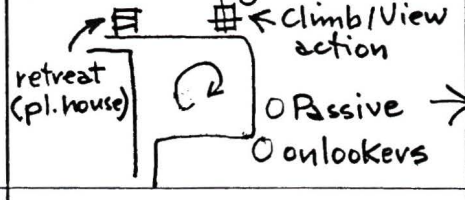
Format used for observational research programme.

DATE/TIME	Same	
ZONE & SPECIFIC AREA		
PARTICIPANTS		
DURATION		
Behaviour taking place (Observation)	Use of Space → Requirements	Design Relevance
i) Child with walker using path with companion	ability to be involved without <u>physical</u> ability →	passive observation (paths to 'nodes' ?)
ii) Climbing-sitting on old tree-stump & branches	micro-space setting, used for 10-15 mins. Many routes up/down; arrival points →	choice: continue or exit.* range of access
iii) Rain puddles	Splashing; 'using' water	water component(s) use of water
Notes./Operative words.	Children <u>use</u> rain, or ignore it	* Moore's 'paced alternatives'

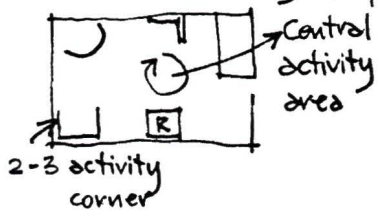
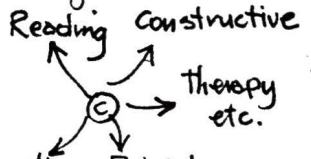
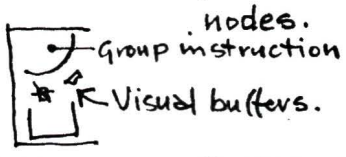
Observational Research Program. Centre: -for Design Relevant Information.

DATE/TIME	26/2 10·30 A.M.	
ZONE & SPECIFIC AREA	Special instruction. BBMC	
PARTICIPANTS	Integrated group	
DURATION	15 mins.	
Behaviour taking place. (Observation)	Use of Space → Requirements	Design Relevance
i) Cleanup session T-directed.	Groups of 2 and 3: → cooperative action user-scale/height shelving & fixed features	Design for this type of action: circulation considerations; anthropometrics.
ii) Directed group activities: building, puzzles etc.	T. spends a lot of time bent over or kneeling →	→ so, use diff. levels  → multi-levels
Notes./Operative words		

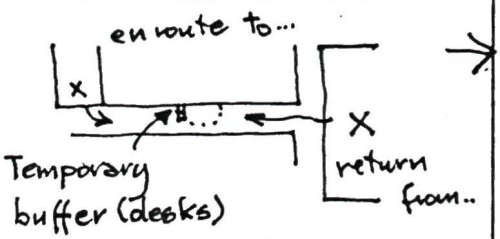
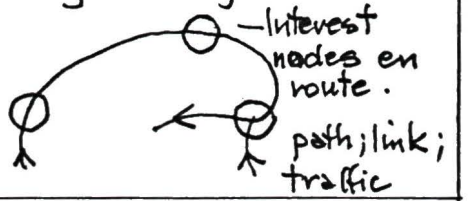
DATE/TIME	26/2 10·50 A.M.	
ZONE & SPECIFIC AREA	Pool - Hydrotherapy	
PARTICIPANTS	3 Children, 3 Teachers/helpers ≈ 1:1	
DURATION		
Behaviour taking place (Observation)	Use of Space → Requirements	Design Relevance
floating - movement of limbs →	Gross motor development; Also: promotion of confidence. →	Grade into pool, depth of water v. shallow at access end. Wheelchair space
	Large coloured balls & mobiles over pool. → Pool changes colour	Shapes & colour to create diff. environment. Cue or distraction. enclosure - security.
Notes./Operative words.		Change environment

DATE/TIME	12/5 10·15 A.M.	
ZONE & SPECIFIC AREA	Outside hard play area GRPC	
PARTICIPANTS	8 children. 1T. 1 helper	
DURATION	15 mins.	
Behaviour taking place. (Observation)	Use of Space → Requirements	Design Relevance
i) Tricycle riding ii) Activities surrounding hardplay area.	Riding mostly in circles → [Need for trike path(s), also for w/chair use]. Some not able to use pedals but still manage machines → 	path layout: as part of o/all plan. leave 'room' for adaptation Links: onlookers/viewers are linked to action.
Notes./Operative words		All activity can & should be interrelated.

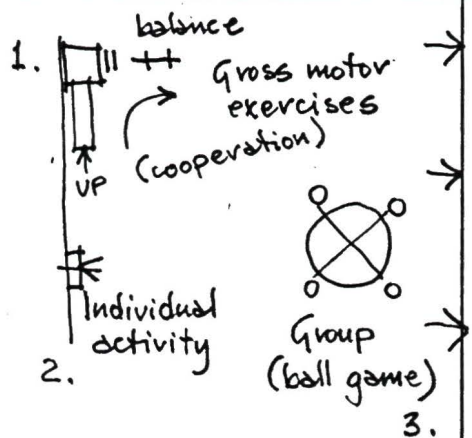
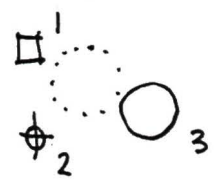
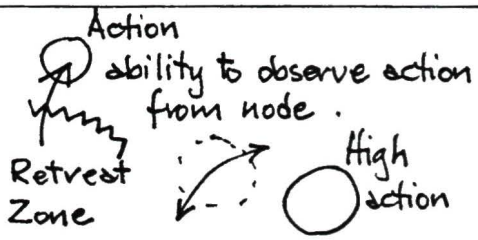
Format used for observational research programme.

DATE/TIME	13/5 11.00 A.M.	
ZONE & SPECIFIC AREA	Classroom	
PARTICIPANTS	9 children	
DURATION	20mins.	
Behaviour taking place (Observation)	Use of Space → Requirements	Design Relevance
i) Freetime activity 	→ Central group activities.  Spin-off to peripheral nodes. 	→ Centrifugal effect of spatial arrangements. Separate activities but same time/sequence in o/all environment. Individual passive-retreat zones.
Notes./Operative words.		sub-settings. non-static environment.

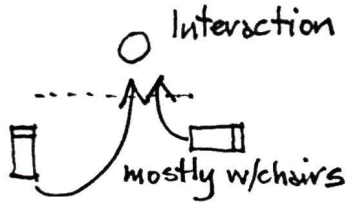
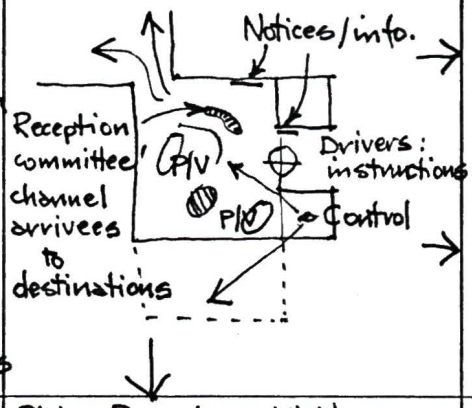
Observational Research Program. Centre: -for Design Relevant Information.

DATE/TIME	14/5 10·30 A.M.	
ZONE & SPECIFIC AREA	Corridor, GRPC.	
PARTICIPANTS	3-4 children	
DURATION	20 mins.	
Behaviour taking place. (Observation)	Use of Space → Requirements	Design Relevance
 → Use of 'found' space (place) for impromptu activity	→ Non-functional use of Space. This group of 3 children & occasional 4th child.. has utilized temporary component as buffer/feature to form semi-enclosure ↓	→ adaptation of environment Design implication: ability to change environment 
Notes./Operative words	cf. Wards colonization of small spaces	Flexibility Non-static situation.

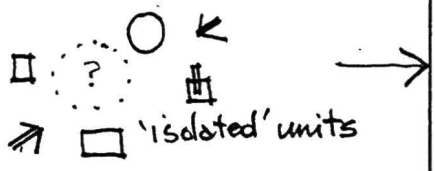
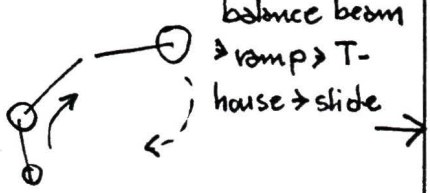
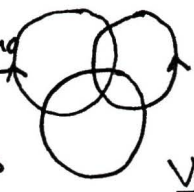
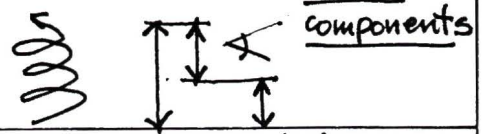
Format used for observational research programme.

DATE/TIME	21/5 2·00 P.M.	
ZONE & SPECIFIC AREA	Therapy GRPC	
PARTICIPANTS	Indivl. one on one (Th. thelper), Group (4)	
DURATION	20 mins.	
Behaviour taking place (Observation)	Use of Space → Requirements	Design Relevance
 → cooperative action - trust → Multi-functional use of relatively small space  →	 Space alone can determine separate activities or functions ↓
Notes./Operative words.		Scale : distance : proportion

Observational Research Program. Centre: -for Design Relevant Information.

DATE/TIME	14/5 8·45 A.M.	
ZONE & SPECIFIC AREA	Arrival - Lobby GRPC.	
PARTICIPANTS		
DURATION	15 mins.	
Behaviour taking place. (Observation)	Use of Space → Requirements	Design Relevance
Arrival of buses & disembarkation  Drivers & helpers push those who are unable to help themselves		Transition Zones Buffers: between structured and unstructured zones Entrance ≙ arrival point(s) very important Design with respect to social interaction.
Notes./Operative words	P/V = Parents & Visitors	ACCESS + circulation, traffic flows, cooperation.

Format used for observational research programme.

DATE/TIME	21/5. 12·30 P.M.	
ZONE & SPECIFIC AREA	Outside, extg. play area GRPC	
PARTICIPANTS	5-7 children	
DURATION	15 mins.	
Behaviour taking place (Observation)	Use of Space → Requirements	Design Relevance
i) 	No flow - movement between units	limits/constraints to imaginative play.
ii) Linear progression 	Need: a progression of activities	Overlapping circuits of activities  Vertical components 
Notes./Operative words.	'Interconnectedness'	movement, orientation, over-under, retreat (refuge). Viewing stations.

Observational Research Program. Centre: -for Design Relevant Information.

Appendix 4.

ROOM KEY — Main Floor Plan, GRPC.

ADMINISTRATION :
- OF. OFFICE
- REC. RECEPTION
- E/DIR. EXECT
- E.S. EXECUTIVE SECRETARY
- CONF. CONFERENCE
- DR. DOCTOR'S CONSULTING .
- N. NURSE
- D.M. DIRECTOR OF PHYSICAL MEDICINE

INSTRUCTION :
- CL. CLASSROOM
- NUR. NURSERY
- D/CARE. DAYCARE
- PR. PRESCHOOL
- JR. JUNIOR
- INT. INTERMEDIATE
- SR. SENIOR
- H/H. HARD OF HEARING .

THERAPY :
- O.T. OCCUPATIONAL THERAPY
- PHYS. PHYSIOTHERAPY
- HYDRO. HYDROTHERAPY
- SP. SPEECH THERAPY

OTHER :
- EXT. EXTENDED CARE
- M/P MULTI-PURPOSE AREA
- K. KITCHEN
- ENT. ENTRANCE (AND WAITING)
- EX./PL. EXTERIOR PLAY AREA
- EX./PL.G. EXTERIOR PLAYGROUND
- EX./B. EXTERIOR DROP-OFF/PICK-UP ZONE
- Ctr. CARETAKER .
- CH. CHANGING ROOM
- FAN. FAN AND PLANT ROOM .

Appendix 5.

THE UNIVERSITY OF BRITISH COLUMBIA

BRITISH COLUMBIA MENTAL RETARDATION INSTITUTE

BERWICK PRESCHOOL ADVISORY BOARD

Guidelines for Research

These guidelines for research have been prepared for use in conjunction with the procedures requested and reviewed by the University of British Columbia Screening Committee for Research and Other Studies Involving Human Subjects: Behavioral Sciences.

1. Prior to submitting a research proposal to the UBC Screening Committee for Research and Other Studies Involving Human Subjects: Behavioral Sciences or elsewhere, the researcher(s), faculty and students, will meet with the Preschool Advisory Board to discuss the purpose, nature and scope of the enquiry, and the methods and procedures proposed.

2. To be accepted, a research proposal must be approved by all Preschool Advisory Board members representing V.R.A.M.R. (3) and two other members. (A majority of five out of eight members.)

3. Families must be involved and informed at the earliest possible time about proposals which may involve their children. (See Request for Ethical Review form No. 19, p. 3.) Parents/guardians may not be excluded from observation of their children in ongoing projects.

4. Studies should be conducted with the least interruption to the regular programme for children and staff. Wherever possible the research should be conducted in natural settings using unobtrusive measures and without indulging in exhaustive and exhausting test procedures.

5. Although subjects may withdraw from a study at any time (see Request for Ethical Review form No. 19, p. 3), and although the Preschool Advisory Board supports studies which do not unduly interrupt the regular Preschool programmes, the following clause is included as a 'double protection' for both subjects and the Preschool staff:

The Preschool Advisory Board retains the right to discontinue, at its discretion, a study deemed inhibiting to the programme.

6. Researchers must adhere closely to all approved procedures for gathering data for the pilot study and the main investigation. If changes in the original approach are needed, e.g., after pilot study, then these changes must be submitted for approval to the Preschool Advisory Board.

Deryck Thompson
Administrator
G.R. Pearkes Clinic
3970 Haro Road
Victoria, B.C.

Dear Sir:

Re: Proposed 'Learning Playground'

The preliminary design for the above; submitted to yourself last week, is based on a need for a comprehensive centre for children with various physical and/or mental handicaps. A centre where developmental skills, necessary for normal progression in growth from infancy to young adult, may, with the aid of professional helpers, be 'learnt'.

On the sketch plan, the site of the playground is shown encompassed by winding contoured paths, fifty per cent of which has an overhead track system which may be used to convey those children who have the most severe mobility problems, around the site. (It will invariably be used by other also, who will like the ride).

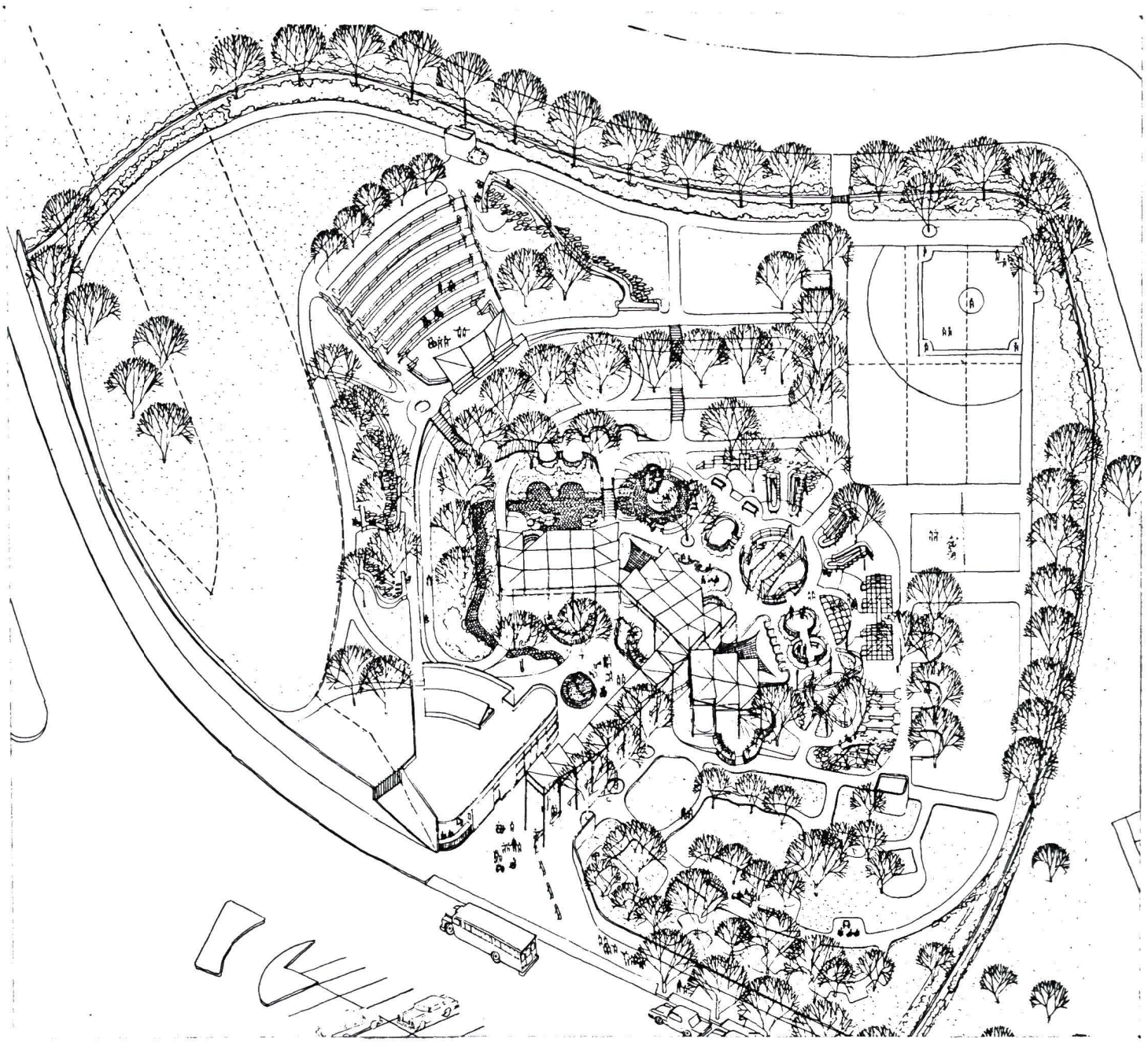
Within the design there is indicated a built-in progression of activities, which may easily be ascertained once the overall nature of the complex has been understood. Some of the most simple activities are shown quite near difficult ones. It is hoped that in using such an arrangement, a high level of interest will be maintained, whilst also providing the opportunity for each child to reach goals within their own individual range.

Along with the path system, a small channel of water has been shown on the plan. Emanating from the central pond, it should be a simple matter to pump the water to a high point where it will run back down again to the pond, creating much interest and play opportunities en route (e.g. see the plan for notional location of ford and waterfall).

Whilst the main structural units would provide opportunities for more specific types of activity and motor skills, it is possible that many varied and imaginative games, or themes could take place in the following areas: the 'Village', the farmyard, picnic area, elevated garden and of course the workyard.

If carried out, the 'Big Top' will naturally become quite a feature. Situated immediately adjacent to the existing building, it would become a functional transition zone between the play centre proper and the clinic itself. The nature of this space should create a sense of difference and anticipation to the child immediately he leaves the building, which is undoubtedly an important factor. The space 'within' would be multi-purpose, and used to great advantage when the weather is unsuitable for other outside activities. This feature could be easily errected and easily taken down again, should this space be needed for another purpose later on.

Appendix 7.



FINAL WINNING DESIGN FOR PLAYGROUND FOR ALL CHILDREN, NEW YORK.

VITA

Surname: Barton Given Names: Michael Leonard

Place of birth: Salisbury, England Date of Birth: November 5, 1943

Educational Institutions Attended:

Portsmouth School of Architecture, England	1962	to	1965
University of Florida (ICS, Bermuda)	1971	to	1974
University of Victoria, B.C., Canada	1976	to	1977
University of Victoria, B.C., Canada	1979	to	1984

Degrees, Diplomas, Etc., Awarded:

Inter. R.I.B.A.	1965	Portsmouth School of Architecture, England
Dip. Arch.	1974	University of Florida

Honours and Awards:

Canadian Community Development Grant (CMHC). For Central Area Victoria (NIP) Study, 1977.

Publications:

Proposed-Play Learning Centre, in Recreation Reporter, November/December, 1981

Environments for Handicapped Children: Play-Learning Centre, in Childhood City Newsletter, No. 25, October 1981 (Now Childhood City Quarterly).

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An Integrative Approach to the Design of Play-Learning Environments for Handicapped Children.

Author [redacted]

Signature

MICHAEL L. BARTON

Name (typewritten)

March 13th. 1985

Date