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WOMEN AND ENVIRONMENTS:

AN OVERVIEW OF AN EMERGING FIELD

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This paper examines the specific environmental needs of women in a very wide range of settings. Such an activity serves both to underline the rising consciousness of women and their demands for equality, to turn around many of the most common issues relating to the form, function, and operation of human environments -- and to open them to a new and revealing scrutiny.

It is commonplace to come across studies of general environments associated with particular elements of the population -- children, the aged, a variety of 'underprivileged' groups, different social classes, and so on. Among such work, which recognizes the particular needs of significant segments of society expressed in environmental terms, it is rare to come across studies associated with women. To some, indeed, the act of distinguishing 'women' from the total population is meaningless; since they are so clearly integrated within the total environment of Man, segregation is unthinkable.

For those who are not convinced that a major social change process is underway, with profound implications for human environments, a concrete and pragmatic demonstration of the need for study of women and environments can be obtained from several factors: the recognition that women form a rapidly increasing proportion of the work force; that the declining birth rate alone will result in significantly different life styles in the future; and that the number of single parent families led by women is increasing dramatically (Hapgood and Getzels, 1974). In these respects alone, women are the

agents of social change -- and this change will inevitably be reflected in demands for changes in the form of our environments (home, work, education, social, and recreational).

This paper is concerned with change -- in women's sense of themselves and their roles, in the relationships between women and their environments which this increasing awareness implies, changes in existing environments which are demanded as a result of women's rising expectations, and changes in the process of design that must be made if new environments are to take account of women's needs.

Much of the literature on women in North America has focussed on the social system and the processes associated with the changing roles of women in our society. Environmental factors have not been treated as independent variables, and an analysis of the way in which societal attitudes are reflected in the environment in which women work, live, and play is lacking. On the other hand, research in the field of Environment and Behaviour treats environment as an independent variable, but tends to view sex as a general demographic variable, similar to age, education, and stage of the life cycle. Little research has systematically examined the differences between men and women in their use and control of environments.¹ Recently women (and some men) have begun to focus attention on the inequities related to women's limited access to certain environments, their powerlessness to affect environments vital to their own well-being, and the costs to women of operating in environmental settings

where accepted norms are not those to which women have been socialized. What such examination reveals is something of the inequalities and inefficiencies inherent in many current environmental assumptions relating to us all - men and women. It demonstrates a feeling of inadequacy and powerlessness which all 'users' of environments suffer under so often.

Although this paper is primarily concerned with raising questions, it provides a broad organizing framework for a new area of study. Selective use is made of available literature, but we do not purport to provide a complete review of work on women's environments. Rather we are concerned with drawing attention to existing work and the gaps in it, and the manner in which some form of 'action research' is necessary to raise these issues in the design professions and among the policy makers responsible for creating and maintaining our environments.

Our primary objective, therefore, is to establish the necessity for distinguishing a separate set of relationships between women and their environments, so that an understanding of these may provide insights into the many current tensions between environments and users, and to suggest new ways of taking action on pertinent issues.

Four sets of questions help define the framework for study:

- 1) To what extent is it useful to distinguish women as a separate group of users in any given environment? How may we classify such environments?
- 2) If women can be identified as a significant and distinct user group, what assumptions are implicit

regarding the roles women will play in the design of particular environments? What limiting effect does this have on the range of behaviour carried out by women?

- 3) To what extent are women involved in the conscious design and modification of a given environment?
- 4) If women can be identified as an important group of separate users, but are not playing a decision-making role in environmental design, how did this discrepancy come about, and how can it be modified?

A Definition of Women's Environments

In order to define a range of 'women's environments' and to identify the problem settings that are associated with them, we have identified four interlocking distinctions:

- 1) The degree of segregation of women/men users in different environments.
- 2) The degree of control or access to decision making that is reflected in the 'roles' played by women as users and occupiers of different environments.
- 3) The manner in which segregation and roles differ according to the 'scale' of environments defined on a macro/micro continuum.
- 4) The nature of the intervention process that is necessary for women to play an effective role in environmental planning, design, and management.

Since the majority of human environments are to some degree 'shared' by both sexes, it is necessary to establish the degree of separation or segregation between the sexes, and to define the women's environments that exist, as it were, within that total shared environment. At either end of the scale there are the totally segregated environments from which one or other of the sexes are excluded -- the men-only clubs or the women's powder room. Even here, there are roles for the opposite sex to play, like the woman cleaner or the male plumber. For the rest, the degree of segregation may be established by social pressure, by established informal practice, by membership constraint, or merely by the subordination of the woman's role to that of a mere onlooker.

We have taken environmental scale or setting as a starting point and examined the degree of control exerted by women and men over environmental settings at different points on the scale (see Figure 1). If we consider environments ranging from the home to the 'world', and the spheres in which women and men are concentrated, it becomes clear that men are dominant (in a control sense) at the scale of the 'world', city, and region by virtue of their political, economic, and employment roles. Women, on the other hand, tend to occupy spaces at the home and neighbourhood levels, and exercise some degree of personal control over them. However, despite women's numerical concentration at the home and neighbourhood scales, key decisions about these spheres tend to be made by institutions operating at the city-wide, regional, or national

scales. Few women penetrate into these spheres, particularly in positions of power,² but they often experience problems when they move away from the 'protected' environment of the home and local neighbourhood and venture into unfamiliar work settings, public spaces, and recreation settings that have not been designed with women in mind.

Institutions that design environments also tend to operate from higher scales to affect environments at a local level. Environmental design rarely takes into account a view of environment that moves outwards from the home. Women, because they have tended to dominate environments at the scale of the home and the neighbourhood, are in a position to contribute a 'micro-perspective' on the quality of life in an analysis of environmental systems. The current emphasis on community control, 'small is beautiful,' and decentralized decision making may mean that women's value systems are uniquely suited to the present shift in urban planning.

Women tend to operate within the context of the actual 'micro' behaviour setting (e.g., the store, the home, or the schoolroom) rather than as part of the wider authority system that controls such individual settings. A useful example is the woman cleaner who vacuums the carpet of a federal government cabinet room. She is related to that room only as a participant in that micro setting, performing the role of a low-level functionary. In contrast, the woman cabinet minister relates to the room both as a micro-behaviour setting (in the actual process of interaction at a cabinet meeting),

but more powerfully as a minister who makes decisions with reference to an entire system of micro settings (e.g., through the administration of health, education, or other systems).

FIGURE 1

SPHERE OF INFLUENCE
AND ACTIVITY BY SEX

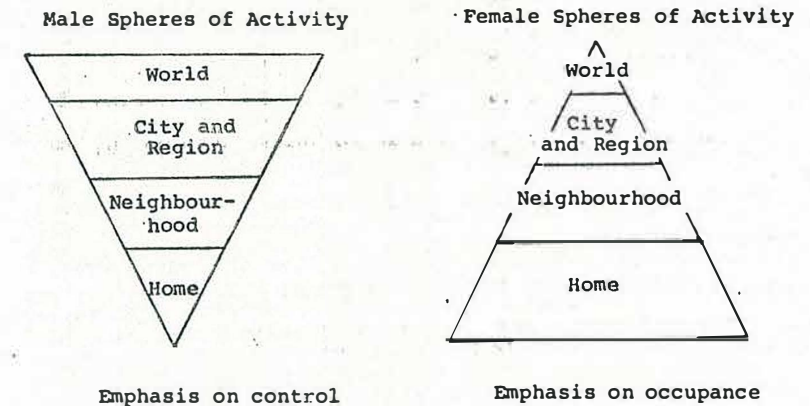


TABLE 1

URBAN BUILT-ENVIRONMENT TYPOLOGYCONTINUUM SUGGESTING DEGREE OF USER CONTROL OF MICRO SPACES
AND EXTERNAL CONTROL OF SYSTEMS OF SPACESMACRO DECISION SYSTEMS

- International/National:
Political/policy-making
Organizations
- Functional control systems (National,
state/provincial, municipal)
transportation
health
education
housing
communications/media, etc.

-
- Major Public Buildings/Public Spaces
 - Regional Commercial Centres
 - Universities
 - Regional Hospitals
 - Recreation Environments
- MESO
- Secondary Schools
 - Workplaces
 - Community Services/Doctors, Health Clinics
 - Neighbourhoods
 - Local Retail Centres
 - Primary Schools
 - Child Care Facilities
 - Playgrounds
 - Home

MICRO BEHAVIOUR SETTINGS

In Table 1, the micro-macro continuum illustrates the range of control and authority ascribed to an individual behaviour setting in relation to operation of macro decision systems. At the micro-level, the continuum begins with the single home, which is within the direct personal experience of the individual. Here there is a high degree of user control over that particular setting, but only very little influence over external controlling forces (zoning, taxation, public transport access, and so on. The citizens' movement and its involvement in the planning of neighbourhoods is specifically concerned with the bridging of this gap between 'users' of local environments and those empowered to design and manage them.

At the meso level, which involves facilities serving a segment of a metropolitan city (high school, hospital), the level of individual user control over the setting is even smaller. Here users are temporary occupants of environments; the administration of such institutions may have some influence on the design of their environments (e.g., the common complaint that hospitals are designed for the medical personnel not for patients). However, in fact, final control is typically firmly based at the macro level.

The term macro-decision system refers here to the centralized control which is focussed in government departments or corporation head offices dealing with transport, housing, water supply, appliance design and distribution, etc. - which influence all the subordinate micro settings down to the level of the home.

DIRECTION OF EXTERNAL CONTROL OF ENVIRONMENTAL SETTINGS
DIRECTION OF DECREASING USER CONTROL

The specific environments and decision systems included in Table 1 are all sexually integrated. Selected examples are examined from the viewpoint of the woman user. These suggest a definition of the extent of womens' occupance of particular spaces, the degree of sexual segregation that occurs, the role characteristics typically associated with women, and the associated functions ascribed to them.

We have in mind a hierarchy of roles similar to Barker and Schoggen's (1973)³ zones of penetration, in which broad categories of function are associated with the level of autonomy and control that a user can exert on a behaviour setting or set of settings. This might range from the 'potential participant' at the edge of a particular setting applying for the right to participate in it or preparing to 'gatecrash' it, to onlookers or invited guests, participants who may be chosen members of a setting population or consumers of services offered in the setting, functionaries who carry out the operation of a behaviour setting, and leaders and decision makers at the macro level of autonomy and authority.

Table 1 should be viewed from both ends of the continuum: the micro behaviour setting and the macro decision system. Each micro setting is influenced by the attitudes, policy, and decisions formulated at the macro decision systems level. Conditions common to that class of settings (micro) might be expected in the same way to influence the direction of policy-making decision. The fact that many women believe that the potential

needs deriving from the roles they play as users at the micro level are not represented at the macro decision level is the critical focus of this paper.

Women and the Built Environment

In one sense, each environment listed in Table 1 can be dealt with as a distinct behaviour setting and as a total system set. For example, the consideration of home environments at the macro level involves the provision of housing geared specifically to the needs of women. In this respect, there is a demand for information on housing facilities provided for single-parent families, communal living for groups of women, emergency housing for women in marital crisis, or housing adapted to the needs of dual-career families.

Each of these circumstances tends: a) to demand an innovative solution; and therefore b) to be discriminated against in terms of by-laws and housing standards. In most cases, zoning laws limit house occupance to one household (effects on communal blended families). Housing standards, which assume integrated nuclear family occupance, affect single-parent families requiring some level of integrated facilities design in the home. Other housing programs prevent flexible or helpful responses, such as subsidizing mortgages for sole-support mothers to enable them to remain in their own house and community rather than to move into public housing.

At the micro-scale, women can be distinguished as a separate group of users of the home environment. The range

of behaviour open to them is influenced both by their access to the range of home environments and by the form of those environments. Because of the time spent in the home, responsibility for management, and the creation and shaping of material and social style, women make a particular set of demands upon the home environments, requiring that it maximize rather than limit their opportunities. Since women are rarely consulted about the design of houses and very few women are employed in the design professions, the spaces in which women spend a large part of their time are often woefully inadequate to their needs. A recent study of women's use of kitchens (Jetha, 1976) discovered widespread dissatisfaction with the size and design of kitchens. Although kitchens are often designed for maximal efficiency as a workplace, many women see it as the control centre of the home -- the place where they feed, nourish, and care for the family. The isolation of the kitchen from the rest of the dwelling unit often makes child surveillance difficult and cuts the woman off from the rest of the family; the cramped space of the kitchen can make it impossible for husbands and wives to share household tasks even when they are willing to do so.

Decreasing space in houses and apartments in response to rising housing costs also creates 'tight spaces,' which result in less storage space and less opportunities for household members to leave hobbies and on-going work without cleaning up each time. How does this add to women's household chores and time spent in maintenance of the home? What are the consequences of forcing more of the family's activities

outside the home into recreation centres, fitness clubs, and so on?

Women are also manipulated through their role as primary household consumer by the advertising industry and the force of the media (Galbraith, 1974). The active role of women in consumer groups, in the ecological movement (e.g., with special reference to the effects of the use of plastics, artificial fibres, phosphate detergents, excessive packaging, etc.) and currently in the energy movement, reflects this assertion. However, there is clearly a threat to women implied in the limits-to-growth approach to home consumption. This relates to the reduction of the use of labour-saving devices and disposable materials. The freeing up of time from home management is apparently in conflict with our rejection of the consumer society, and there is inevitably a confusion in the minds of many women committed to pressing for change in home environments from that standpoint (Nicholson, 1973). We are left with a sense that the guidelines for changing the design of home environments in response to the needs of women are not firmly established and that the mere discussion of this topic still does not go beyond the newspaper colour supplement level.

The same undeveloped state of research and an incomplete basis for determining the nature of change is also apparent in consideration of child care environments in relation to the needs of women (whether a female child, the mother as parent, or the woman child-care supervisor). To consider

only women in this context is of course to make an arbitrary distinction, but the intention of such a focus is to raise the particular set of issues associated with women and environments as a means of exploring the need for changes in values, attitudes, and environmental design in general.

Child care environments are provided throughout the range of micro-macro settings and not merely at the neighbourhood scale. Day care, for example, can be carried out in the home setting, in a local school, at workplaces or in association with large public spaces (airports, tourist facilities, hotels, etc.). The demand that mothers with full-time employment continue as the primary parent and the manager of the children's environment is a point of maximum affliction in dual-career families. In this respect, the availability of child care facilities, the location of child care environments in relation to the home and workplace, and the extent to which the sense of the quality of that environment supports the psychological and social needs of the parent are important aspects of this issue. Questions such as the hours of availability of child care and the cost of such a service can be critical elements in determining the well-being of a mother as well as the child.

Women are clearly viewed as separate users of neighbourhoods. As an extension of the home setting, the neighbourhood is assumed to be the woman's arena of action. Because of their more limited personal mobility, and the demands of our child-centred family existence, some women's home range may

be no greater than that of a small child. This is particularly the case in suburban neighbourhoods, where public transport is minimal (Michelson, 1973). This limiting aspect of social life, which is reflected in the options for women that are provided within neighbourhood environments, serves to increase the sense of grievance felt by many women today. The economic as well as the social pressure to take at least part-time employment serves to heighten the sense of entrapment.

Existing research suggests that women as a group bear the greater social costs of living in new communities (Goldstein, 1975; Wilmott, 1967). Women are stuck in isolated environments that lack day care facilities, jobs, and educational facilities for job upgrading. Part of the problem is related to planning practices that create homogeneous residential areas, single-use zoning, urban sprawl, and inadequate public transportation and support services. For women, these environmental problems are often exaggerated by poverty, especially among sole-support mothers and the elderly.

Women may occupy neighbourhood space as users at the participant role level, but they scarcely participate at the policy level where decisions on neighbourhood design are made. The ASPO volume (Haggood and Getzels, 1974), which remains the key reference in issues relating women's environments to the planning of urban environments in general,

proposes that neighbourhoods be made more responsive to women's changing lifestyles. They suggest more flexible zoning to better integrate home and work; creation of mixed-use, diverse neighbourhoods oriented to the needs of adults as well as children; and the decentralization of functions to community centres which could include government offices, child and health care, adult education, and cultural activities. Certainly breaking down the homogeneity of the suburban neighbourhood and expanding urban activities into neighbourhood settings would assist women. But it would also tend to reinforce the traditional roles and activity systems that women are attempting to break away from, assuming as it does that women will continue to focus their activities primarily on the home and its locality. It is precisely environmental settings outside the neighbourhood that women are attempting to penetrate and in which they intend to play roles beyond those of functionary or consumer. Interestingly, the most radical proposals for improved neighbourhood services might be those that allocate funds for the provision of greater learning and information services for women in their neighbourhoods. If these were used to reduce women's dependence on the neighbourhood environment, they might be effective in extending their fields of activity.

Expressed in spatial terms, the quality of modern western urban environments depends on the mobility of the residents. In many ways, the urban system in its present form limits women's mobility. At every level distinctive

differences between the activity patterns of men and women have been established. Women's ascribed roles 'create spatial and temporal limitations on both the occupational and leisure-time options open to women' (Palm and Pred, 1974). Women's mobility in the city is particularly inhibited by problems related to the meshing of work schedules with the location of day care centres and other public service facilities. The ability of working women to choose among job opportunities, shopping alternatives, and leisure activities is also severely restricted by their lack of access to automobiles compared with males⁴ (Palm and Pred, 1974). The ability of women to take advantage of opportunities available throughout the urban region is further constrained by the fact that working wives do a disproportionately large share of the household chores and almost all of the child-rearing.⁵ This leaves them with relatively little discretionary time to travel to activities which are far removed from home.

Alternative Environments Designed by Women

The increase in the range of behaviour settings designed by women for women reflects a direct expression of the frustration and feeling of powerlessness in setting described above. The Womens Movement is decentralized, made up of many informal groups. It emphasizes collective action, defines its own boundaries, and provides innovative solutions -- for example, the provision of environments responding to the specific needs

of women which are not provided under normal circumstances (Beitz and Washburn, 1974). These solutions may mean the development of exclusive, segregated environments for women. These are new behaviour settings created by women in response to changing women's roles and expectations, and are often a reaction to existing situations. Examples of these include university women's centres, YWCA women's resource centres, women's book stores, women's clubs, women's health clinics, women's pubs, and women's art galleries. Each of these environments relates closely to its constituency, disseminates information, and encourages users to create and modify the environment. The effect on the participants is to provide a psychological life, sympathetic interaction, and consciousness raising with the intent of initiating social action. They are environments of caring.

A second category of women's environments may be grouped under the heading of women's crisis environments. These are environments specifically provided for women (often by women) to deal with particular crisis events special to women, and especially those associated with their biological functions and with marriage breakdowns. These include legal 'storefront' services for women, rape centres, abortion clinics, and emergency housing for women in marital crises. There is a particular need for residential centres to provide temporary accommodation for women and their children who are faced with marital crisis or eviction. These are temporary needs and are demanded on an emergency basis.

How does a battered wife challenge her husband and remain protected throughout a lengthy legal process? She needs shelter and refuge, personal support, and emotional and practical advice as well as security from assault. Such a residential environment needs to provide women with time to adjust, active counselling, and information on long-term problems relating to home and job. There are also basic requirements for personal privacy at this time. However, such agencies are not the responsibility of any major funding agency. In many instances such environments are operated and run by women. This is a woman's problem, and with lack of full support from our social services, it demands a woman's solution (Sperberg, 1976). In this case, as in other environments created by women, financial resources are almost non-existent and much of the energy of the institution is spent dealing with this lack of funds.

There is little detailed work on the effectiveness of such environments, nor are there designs which could be used for establishing such environments on a more established basis. In addition, work needs to be done in association with other crisis environments in which women find themselves: mental health clinics, women's prisons, divorce courts, and health environments. The fact is that women are not satisfied with the way in which these environments deal with their particular needs and any research work into such areas must build into it the means by which changes can be implemented.

A particularly important extension of this design of special women's environments are those which we have called women's biological environments. This includes pre and post-natal clinics, gynecological clinics, birth control centres, and birth environments. In each of these there is a sense in which the woman as patient plays the role of 'onlooker.' The control, design, and technology of such environments are in the hands of men. A particular case in point is the birth environment. Here the dominant technology of the medical profession maintains our 'emergency' view of the birth process and insists on hospital births. However a growing number of women are insisting that child birth is a natural process and that the setting for it should be the home (except where there are medical problems).

Women and the Natural Environment

This is one area that has been largely ignored in the consideration of women and environments. We believe it demonstrates succinctly the 'separation' of women as users of the environment, the problems they perceive in the equality of their access to environments, and the need for major and substantial shifts in the way individuals and institutions -- especially the high order of decision makers -- view this issue.

Most discussions of women's environments focus on built, urban environments. However, an examination of the roles of women in relation to 'natural' or biophysical environments is instructive. Table 2 provides a possible range of such environments on the micro behaviour setting/macro systems continuum.

The level of environments in Table 2 differs from the typology of environments listed for the built environment. The natural environments are under the control of the macro decision systems of the built environment arena. Therefore, one must analyze this set of environments in relationship to the macro decision systems of the built environment.

The set of questions to be asked in relationship to these environments are the same as those asked in relationship to the built environments. First, can women be distinguished as a separate set of users in these environments? It is our contention that in many of the urban parks and wildlands, and in the provincial and national parks, one will find that women are most often accompanied by men, and that one will seldom find women alone in these environments. Safety and security needs of women may teach them early in life that to be alone in these relatively uninhabited environments is to invite trouble. It would be interesting to find out whether this is in fact true, and if it is possible to design parks and wildland areas which would invite the use of women without causing them to fear for their bodily safety.

The roles that women play in resource environments and agricultural environments are so seldom mentioned that it seems novel to deal with them in this paper. Women are present in farming operations, but here, as in the built environment, women are seen as the 'farmer's wife' who carries much of the work load in the operation but seldom receives any acknowledgment, either as a paid employee or as a decision maker. In resource environments women are seldom

TABLE 2

NATURAL ENVIRONMENTS TYPOLOGYCONTINUUM OF SCALEMACRO DECISION SYSTEMS

- Energy/Resource Systems
- Air/Water/Soil Systems
- Population/Food Resource Systems

MESO

-
- Extreme Environments: Arctic, Mountains, Marine, Outer Space
 - Oceans
 - Wilderness Areas
 - Provincial, State and National Parks
 - Lakes
 - Resource Environments: Mines, Forests, Quarries, Oil Drilling Sites, Fishing, Hunting, and Trapping Industries.
 - Agricultural Environments
 - Urban Wildlands: Ravines, Creeks, River Beds, etc.
 - City Parks
 - Local Parks
 - Gardens

MICRO BEHAVIOUR SETTING

present at all. Here then, are the truly segregated environments of our society. In the 1971 labour force statistics for Canada, women made up 525 of the 27,175 people employed in fishing, hunting, and trapping; 1,415 of the 65,859 employees in forestry and logging, and 375 of the 58,780 employees in mining and quarrying (Statistics Canada, 1974). Unless one looks at the figures for women in politics, one can seldom find environments where so few women are present. We do not know, in looking at these statistics, what role the women play in these environments. Women may be the clerks and secretaries in these industries. Whenever a woman does get a job in a mine, in a logging camp, or on an oil drilling site, this is an event worthy of such note that it appears in the national press.

Why should we be concerned with these extreme examples of segregation in this paper? They might tell us something about the ways in which women and men make decisions about the kinds of environments they are entering and about the dynamics that underlie the exclusion of women from some environments (and the inclusion of women, to the exclusion of men, in other environments).

Another case of segregation by sex can be identified in considering the extreme environments of the Arctic, mountain, and marine environments, and outer space. Women are rarely a part of Arctic expeditions, mountain climbing expeditions, underwater or space explorations.

Why are these natural environments so obviously not open to women? The exclusion of women from logging and mining activities, or expeditions into extreme environments can be explained in several ways:

- 1) Science and engineering have been the dominant areas of expertise in these environments. Women have systematically been socialized away from these professions and therefore they have not had either the training or inclination to enter roles in these settings.
- 2) In many of these environments there is an element of danger or risk. Women have been viewed as a protected species and so have been excluded from environments where danger is seen to be too great, from the perspective of the men who feel it is their duty to protect their women.
- 3) Many of these environments involve the manipulation of nature; some would call it the domination of nature. Because of their traditional role in society, women are less likely than men to engage in activities that are concerned with manipulating the natural environment (Saegert and Hart, 1975).
- 4) Some men perceive the introduction of women into arduous tasks requiring team cooperation as a threat to the task to be accomplished. There is a hint of fear of sexual complications. Women are viewed as "femmes fatales" and their introduction into a natural setting might result in all sorts of difficulties.

These are some possible explanations for the exclusion of women from many natural environment settings in North American culture. There is a need for research to explore the reasons for the exclusion of women from these 'male dominated' settings. In addition, research on the effects of the introduction of women into these settings would be useful in shedding light on the particular ways in which women modify settings.

In addition to being excluded from these micro level settings, women have been excluded from the decision-making areas which involve natural environment systems, i.e. energy/resource, air/water/soil, population/food resources. This is an increasing problem as natural environment system limitations become more apparent, and life styles are adapted to cope with these limitations.

Increasingly, the decisions that are made regarding the particular issue of energy and resources will impinge upon the home setting where women have had some control in the past. In order for women to influence life-style design in the future they must become active in the decision-making systems where decisions about energy and resources are made. If women are not involved in making these decisions, then they will have lost the only power which they have had -- the control over the functioning of the home space.

The implications for women of the energy problem extend beyond the home. Second cars will become uneconomical, and women at home may find themselves even more stranded than before, unless transportation systems are designed to serve

the female at-home population more efficiently. There are ways, however, in which the requirements for energy conservation may lead to more choice in life-style arrangements for women. Present zoning regulations discourage communal living situations, which might be attractive alternatives to dual-career families, single-parent families, and single women. Clark (1975) cites a study which found that energy and resource use was lower in urban communes than in urban conventional homes. The availability of this kind of evidence on communal energy conservation may lead to changes in zoning regulations which will open up urban living alternatives sooner than would other social processes.

Conclusions

There are some important questions to be asked in order to find new ways to initiate action on women's environments. Research of a particular character is necessary to fulfil these objectives.

- 1) The focus of concern should be broadened to include all types of environments, including the natural environments and systems environments.
- 2) An interdisciplinary approach is essential.
- 3) Research concerns should be fused with the need for intervention in these settings. Research that is not concerned with application will be unlikely to initiate change.

- 4) Issues of power, control, and justice are of paramount importance to interventionists in this area, and researchers should be aware of this in order to orient their research to these questions.
- 5) In analyzing the needs of women in environments, there is a need to deal not only with existing roles, but also with the changing roles to which women aspire.

FOOTNOTES

- 1 Recent studies by women geographers, sociologists, psychologists, planners and architects have begun to show the gaps (and inherent sexism) in research on the environment-behaviour interface which ignores the special experiences of women. However, this work is still in the initial stages of posing questions that need to be asked rather than providing hard data to guide policy. See Hapgood and Getzels, 1974; Palm and Pred, 1974; Goldstein, 1976; Saegert and Hart, 1975; Saegert, 1975; Griffiths, 1975.
- 2 In Canada, relatively few women receive degrees in planning or design. In 1974, there were 132 female members of the Canadian Institute of Planners or approximately 9.6% of the total membership (Symonds, 1974). In 1971-72, only 27 women (10.8% of the total) graduated with first professional degrees in architecture and landscape architecture; 45 women (12.9% of all graduates) received degrees in environmental studies; and 53 (a mere 1.3%) of the engineering graduates were women (Vickers, 1976). Bernard (1971:118) notes that the decline in the proportion of women in professional and technical professions in the past thirty years may in part be attributable to the rapid expansions of sex-typed professions like planning, engineering, biology, chemistry.
- 3 We intend to continue to work on the modification of the Barker zones of penetration for the purposes of defining roles women play in particular settings.
- 4 A recent study in the San Francisco Bay area showed that 42.5% of all women 19 and over lacked personal access to a car contrasted with 18.7% of males (Palm and Pred, 1974).
- 5 A study of the time budgets of married men and women living in the Greater Vancouver area (Meissner, et.al., 1975) shows that women working full-time spend 18.7 hours per week on household maintenance; husbands spend between 3 and 5 hours per week. The leisure activities of women also tend to give way to greater demands made by employment and children (Meissner, 1976).

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