Massey D (1984) *Spatial divisions of labour: social structures and the geography of production* (Macmillan, London)

Ministry of Treasury and Economics (1984) *Ontario statistics* (Ministry of Treasury and Economics, Toronto)

Social Planning and Research Council (1985) *An overview of the impact of the recession on women in Hamilton-Wentworth* (SPRC, Hamilton)

Statistics Canada (1961a) *Census volume III, part 2, industries*, cat. no. 94–518 (Statistics Canada, Ottawa)

Statistics Canada (1961b) *Census volume III, labour force occupations*, cat. no. 94–507 (Statistics Canada, Ottawa)

Statistics Canada (1971a) *Census volume III, part 4, labour force industries*, cat. no. 94–972 (Statistics Canada, Ottawa)

Statistics Canada (1971b) *Census volume III, part 2, occupations*, cat. no. 94–719 (Statistics Canada, Ottawa)

Statistics Canada (1981a) *Census volume III, profile series B*, cat. no. 95–977 (Statistics Canada, Ottawa)

Statistics Canada (1981b) *Labour force annual averages*, cat. no. 71–529 (Statistics Canada, Ottawa)

Statistics Canada (1981c) *Census volume II, provincial series selected characteristics*, cat. no. 93–966 (Statistics Canada, Ottawa)

Statistics Canada (1981d) *Census volume III, profile series B*, cat. no. 95–952, 95–956, 95–957, 95–961, 95–962, 95–967, 95–974, 95–975, 95–977, 95–980 (Statistics Canada, Ottawa)

Weaver J C (1982) *Hamilton: an illustrated history* (James Lorimer and Company, Toronto)

Women Back Into Stelco (1979) ' Hamilton women back into stelco committee continues campaign to get women back into Steel Company of Canada (WBIS c/o USWA Local 1005, Hamilton)

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The geography of women's fear

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Summary *This paper examines the relationship between women's fear of male violence and their perception and use of space. Consideration is given to how public space is occupied and controlled by different groups at different times. The conclusion drawn is that women's inhibited use of space is a spatial expression of patriarchy.*

In March 1988 Deborah Linsley was stabbed to death in an empty train compartment on the Orpington to Victoria line.

It is well established in the sociology and criminology literatures of western Europe that women are the gender more fearful of crime and that this is related to women's sense of physical vulnerability to men, particularly to rape and sexual murder, and an awareness of the seriousness and horror of such an experience (Baumer 1978; Riger *et al.* 1978; Balkin 1979; Gordon *et al.* 1980; Toseland 1982; Warr 1985; and Stanko 1987). However little has been written about the geography of this fear (Scheppele and Bart 1983). This article considers issues raised by events such as the murder mentioned above and uses my own research conducted in Reading[1] to explore the relationship between women's fear of male violence and their perception and use of public space.

Concern surrounding Deborah Linsley's death raised as many issues about her use of space as about male violence. Deborah was in an isolated public space away from the protection of others, thus allowing a man the opportunity to kill her. In subsequent comments on the murder both the police and the media implied that Deborah was to a certain degree responsible for her own fate by putting herself in such a situation, and warned other women to avoid putting themselves in similar situations of vulnerability. This assumption about women's lack of freedom to be in certain public spaces, at certain times is reflected in comments made by Reading women[2].

> ' You hear it on the news and things about attacks and you wonder why that girl was out on her own anyway. I'm never going to let myself get into a situation where I'm alone, cos you just don't know who will be there '. (Lower Earley young woman)

Public blame of victims who were in public places, for being in a dangerous or inappropriate place when they were attacked, encourages all women to transfer their threat appraisal from men to certain public spaces where they may encounter attackers. The other side of this fear of being in public space is for women to adopt false assumptions about their security when in places falsely deemed safe for women, such as the home.

The geography of fear

The association of male violence with certain environmental contexts has a profound effect on many women's use of space. Every day most women in western societies negotiate public space alone. Many of their apparently ' taken for granted ' choices of routes and destinations are in fact the product of ' coping strategies ' women adopt to

stay safe (Riger and Gordon 1981; Riger *et al.* 1982; Stanko 1987). The predominant strategy adopted by the women I interviewed is the avoidance of perceived ' dangerous places ' at ' dangerous times '. By adopting such defensive tactics women are pressurised into a restricted use and occupation of public space. Therefore an understanding of women's use of space necessitates an awareness of their geography of fear. A woman's ability to choose a coping strategy and therefore her consequent use and experience of public space is largely determined by her age, income and lifestyle (Valentine forthcoming).

Women develop individual mental maps of places where they fear assault as a product of their past experience of space and secondary information. In particular girls are socialised into a restricted use of public space through observing both their parents' differential fears for them and the control of the spatial range of their activities in relation to boys (Hart 1979). Consequently most girls have mental images of places where strange men may approach them instilled at an early age. However, despite their fears and possible avoidance of ' dangerous places ' my research suggests that most young women do have some form of frightening experience such as being flashed at or followed (see also Hall 1984; Kelly 1987; Wise and Stanley 1987). Such incidents then become associated with the environmental context in which they took place, so reinforcing or developing the young woman's geography of fear. Additionally, these mental maps of feared environments are elaborated by images gained from hearing the frightening experiences and advice of others; and from media reporting, such as that of Deborah Linsley's death.

Women assume that the location of male violence is unevenly distributed through space and time. In particular women learn to perceive danger from strange men in public space despite the fact that statistics on rape and attack emphasise clearly that they are more at risk at home and from men they know. This is because when in public the behaviour of any stranger encountered is potentially unpredictable and uncontrollable. (In this context my research suggests that women perceive only men as strangers). Public space is defined by Waltzer (1986) as ' the space we share with strangers, people who aren't our relatives, friends or work associates '. Unlike men women find that when in public space their personal space is frequently invaded by whistles, comments or actual physical assault from strange men. This inability of women to choose with whom they interact and communicate profoundly affects their sense of security in public (Hanmer and Saunders 1984).

The type of places in which Reading women anticipate themselves to be most at risk are therefore those where they perceive the behaviour of others, specifically men, who may be sharing that space to be unregulated. First, large open spaces which are frequently deserted: parks, woodland, wasteground, canals, rivers and countryside. Frequently local place mythologies develop around such places. The Reading findings reflect an association between wooded parks and ' dirty old men ' similar to that noted in Burgess's open space project (1987). Secondly, closed spaces with limited exits where men may be concealed and able to attack women out of the visual range of others: subways, alleyways, multistorey carparks and empty railway carriages. Such opportunities for concealed attack are often exacerbated by bad lighting and ill considered and thoughtless building design and landscaping (Heing and Maxfield 1978).

Reading women say that when they are in places where they perceive themselves to be at risk they are constantly alert to their physical surroundings, listening for every rustle in the bushes or approach of footsteps. As a result, most women, especially at night, have a heightened consciousness of the micro design features of their environment, and adjust their pace and path accordingly: running past or crossing the road to avoid alleyways, indented doorways, over-grown bushes and other perceived shadowy areas.

> ' You've gotta be alert at night. I mean I'm always aware, I'm like a radar at night, the slightest noise and I'll hear it ' (Whitley Wood young woman).

> ' When you're alone you suddenly realise how bad the lighting is, or the kind of road you're walking down, whether it's fairly well lit or got lots of trees and things. You're just so aware. But you don't notice it if you're with somebody ' (Lower Earley young woman).

As a product of their fear, many women not only perceive, but also experience, their environment differently to men (Mazey and Lee 1983; Tuan 1974).

Social control, space and time

Not all public places are perceived as equally threatening all the time because in many places or at some times the behaviour of those occupying the space is externally regulated either formally or informally, so reducing the perceived opportunity for attack. Formal control of public space is exercised not only directly by the police or private security guards, but more indirectly by store managers, bus conductors, park wardens and other authorised personnel in the process of providing a public service. Recent public spending cuts, resulting in fewer staff, particularly in public transport services, have eroded this formal control and contributed to women's sense of vulnerability in public space.

Informal social control in public areas relies upon the potential intervention of others present to act as a deterrent to those contemplating crime. This is more successful in stable neighbourhoods where people have strong social and family ties through long periods of residence. They become familiar with the place ballet (Seamon 1979) and are therefore more easily able to recognise strangers and inappropriate behaviour. As such they are more likely to feel confident to intervene to help others, or to know where or from whom to seek help if they perceive themselves to be threatened (Conklin 1975; Riger and Lavrakas 1981; Riger *et al.* 1981).

> ' I've lived here all my life so I feel more safe in Whitley than what I do anywhere else. Cos I know that if I'm round here even if I didn't know anybody I could just knock on their door, just cos I live round here and so most people I know them, or seen 'em, you know round sometime, or the family knows 'em ' (Whitley Wood married mother).

However, in affluent private housing estates where there is a high turnover of population, the emphasis on privacy and individual mobility tends to result in the use of the space solely as a place of residence, rather than as multiuse community space. Consequently the inhabitants are frequently strangers to each other and the place, and therefore informal social control has to be generated artificially through neighbourhood watch schemes.

> ' I mean here it's the commuter belt so people are in and out all the time. I never expect to think people will stay very long here, they just pass through. So there are so many people around who are strangers you just don't know people. I know they call it the Lower Earley community but I don't see any evidence of it ' (Lower Earley married mother).

A woman's perception of her safety in her local neighbourhood is therefore strongly related to how well she knows and feels at ease with both her social and physical surroundings.

When a woman is in an area beyond her local environment she makes judgements about her safety in public space on the basis of preconceived images she holds about that area and its occupants, as well as from cues she receives about social behaviour from the actual physical surroundings. For example signs of incivility such as vandalism and graffiti suggest inappropriate or threatening behaviour is possible or permitted, whereas signs of care such as neat, litter-free streets suggest the opposite (Lewis and Maxfield 1980; Brower *et al*. 1983). A woman will therefore not automatically assume safety in a public space occupied by others, if she perceives those present or perceived to be controlling that space as a threatening or alien group. These fears of potential hostility are particularly centred upon the town centre and residential areas identified on the basis of ethnicity or class. In Reading both the middle and working class white women interviewed hold an image of a predominantly Afro-Caribbean residential area as dangerous for white women because of a racist assumption about the violent nature of black males. Similarly, the middle class women also anticipate a large ' rundown ' council estate to be rough, whereas the residents of that area perceive themselves to be safer than the middle class women do in their own housing area.

Beyond this general attribution of control to the major residential group, the group which is actually dominant in a public space is time specific, the controlling group fluctuating with time of day. Public space is segregated through time according to gender and age, due to different lifestyles and hence time-space routines. During the daytime in towns and cities such as Reading, public places such as streets, shops, parks, public transport and town centres are numerically dominated by women in part-time paid work, housewives, young children and the elderly[3]. This is because of their limited access to private transport, flexible time budgets and need to fulfil domestic tasks, such as shopping. Those men who are present are usually engaged in work related activity and therefore their behaviour appears both predictable and controllable. As evening draws in, it is younger people, and particularly men who are visible. Freed from the confines of work, and usually without the family responsibilities of most women, they have the time, energy and financial resources to go out in the pursuit of leisure activities and therefore to numerically dominate public space. Consequently, whilst women identify specific isolated places as frightening during the day, they express a fear of all public space alone at night. This is not only because night reduces visibility and therefore increases the opportunity for attackers to strike unobserved, but because the nature of public space changes, being dominated in the evening by the group women have most to fear, men.

> ' I don't feel safe in the evening, I think it's because you think there'll be drunken men coming out of the pub and what have you. And you know you get " dirty old men " around at that time of night that there aren't in the day. Cos you know in the evening they've got an excuse to be out roaming the streets, you know they can go to the shop or pub or whatever ' (Whitley Wood young woman).

This domination is achieved not only through numerical appropriation of space, but through assertive and aggressive behaviour which intimidates and embarasses women. Examples referred to during my Reading group discussions include: male use of physical size and comportment to intimidate women, for example when trying to be served at a bar; male mockery of the ability of women engaged in sporting or leisure activities such as running or playing pool; and male verbal harassment or the physical forcing of attentions upon women unaccompanied by other males. Such behaviour by unknown men is particularly unpredictable and threatening when their need to assert their masculinity is heightened by drink and the social pressures of a peer group context. Consequently, women are told and soon learn through experience that it is inappropriate and potentially unsafe to be alone in male dominated space, especially at night.

Women's fear of male violence does not therefore just take place in space but is tied up with the way public space is used, occupied and controlled by different groups at different times. There is a vicious circle in operation. The majority of women still adopt a traditional gender role, and as a consequence are pressurised into a temporally segregated use of space. The subsequent control by men of public space in the evening means that despite the career success and independence gained by some women in the past decade (during which time there has been a significant rise in reported sexual and violent crime) the fear of male violence deters the majority of women from being independent. It robs them of the confidence to live alone, to work in certain occupations, and to socialise without a group or male chaperon.

> ' I've often thought when I was 21, I've often thought about getting a place on my own, I mean even when I was at school I wanted to do that, but now I don't think I could live on my own. I'd feel so unsafe ' (Lower Earley young woman).

> ' With my last job which was at Northsea they started opening at ten o'clock at night, and I only did a couple of hours in the evening, but it wasn't that it was the coming home in the evening, you know, I was dead scared of coming home on my own and I couldn't arrange for anyone to meet me cos my Dad he won't, anyway and it used to make me scared and I said I just can't go in like this in the evenings because it's frightening me. I gave that job up ' (Whitley Wood young woman).

This inability of women to enjoy independence and freedom to move safely in public space is therefore one of the pressures which encourages them to seek from one man protection from all, initially through having a boyfriend and later through cohabitation. This dependence on a single man commonly limits women's career opportunities and general lifeworld. This in turn results in a restricted use of public space by women, especially at night, allowing men to appropriate it and hence making women feel unsafe to go out, reinforcing their comparative confinement in the home. Consequently this cycle of fear becomes one subsystem by which male dominance, patriarchy[4], is maintained and perpetuated. Women's inhibited use and occupation of public space is therefore a spatial expression of patriarchy.

Conclusion

There is a need for more research into issues surrounding gender and public space. First to explore in more detail how women's fear and hence use of public space varies throughout the lifecycle, with ethnicity and disability, and in different localities, particularly between rural and urban areas. Secondly, to examine further how individuals and groups appropriate and control public space, with particular reference to gender and ethnicity. Thirdly, to follow up the work on how children (Hart 1979) and the elderly's perception of space varies from that of adults of working age by examining in detail how men and women perceive and experience space differently. Finally, to use this research on gender and space further to develop feminist theory and practice within geography.

Notes

1 This paper is generated from research about the nature and implications of women's feelings of fear when in public space currently being undertaken as part of a PhD thesis at the University of Reading. The results are based on 80 in depth interviews (with accompanying spatial diaries) and six small-group discussions with Reading women of varied age, lifestyle and income. In addition, periodic recorded observation of specific public space is being made.
2 The research is concentrated on two main areas of Reading, a middle class housing estate (Lower Earley) and a council estate (Whitley Wood).
3 This may not be true for the centre of major cities such as London, where the unique character of the transport systems and the more varied use of space for example by groups such as tourists means the presence of more non working men in public space during the day.
4 For a discussion of patriarchy see Sargent 1981; Jagger 1983; Foord and Gregson 1986.

References

Balkin S (1979) ' Victimisation rates, safety and fear of crime ' *Social Problems* 26, 343–58
Baumer T (1978) ' Research on fear of crime in the US ' *Victimology* 3, 254–67
Brower S, Dockett K and Taylor R B (1983) ' Residents perceptions of territorial features and perceived local threat ' *Environment and Behaviour* 15, 419–37
Burgess J (1987) Unpublished paper presented at Reading University Seminar, 1 December
Conklin J E (1975) *The impact of crime* (Macmillan, New York)
Foord J and Gregson N (1986) ' Patriarchy: towards a reconceptulisation ' *Antipode* 18, 186–211
Gordon M T, Riger S, LeBailly R K and Heath L (1980) ' Crime, women and the quality of urban life ' *Signs* 5, 144–60
Hall R E (1984) *Ask any woman: a London inquiry into rape and sexual assault* (Falling Wall Press, Bristol)
Hanmer J and Saunders S (1984) *Well founded fear: a community study of violence to women* (Hutchinson, London)
Hart R (1979) *Childrens experience of place*, (Irvington, New York)
Heing J and Maxfield M (1978) ' Reducing fear of crime: strategies for intervention ' *Victimology* 3, 279–313
Jaggar A (1983) *Feminist politics and human nature* (Harvester Press, Sussex)
Kelly L (1987) ' The continuum of sexual violence ' in Hanmer J and Maynard M (eds) *Women violence and social control*, (Macmillan, Basingstoke), 46–60
Lewis D A and Maxfield M G (1980) ' Fear in the neighbourhood: an investigation of the impact of crime ' *Journal of Research in Crime and Delinquency* 17, 140–59
Mazey M E and Lee D R (1983) *Her space, her place—a geography of women* (AAG, Washington)
Riger S and Gordon M T (1981) ' The fear of rape a study in social control ' *Journal of Social Issues* 37, 71–92
Riger S and Lavrakas P (1981) ' Community ties: patterns of attachment and social interaction in urban neighbourhoods ' *American Journal of Community Psychology* 9, 653–65
Riger S, Gordon M T and LeBailly R K (1978) ' Women's fear of crime from blaming to restricting the victim ' *Victimology* 3, 274–83
Riger S, Gordon M T and LeBailly R K (1982) ' Coping with urban crime: women's use of precautionary behaviour ' *American Journal of Community Psychology* 10, 369–86
Sargent L (ed) (1981) *The unhappy marriage of marxism and feminism: a debate on class and patriarchy* (Pluto Press, London)
Scheppele K L and Bart P B (1983) ' Through women's eyes: defining danger in the wake of sexual assault ' *Journal of Social Issues* 39, 63–81
Seamon D (1979) *A geography of the lifeworld* (Croom Helm, London)
Stanko E A (1987) ' Typical violence normal precaution: men, women and interpersonal violence in England, Wales, Scotland and USA ' Hanmer J and Maynard M (eds) *Women, violence and social control* (Macmillan, Basingstoke), 122–34
Toseland R W (1982) ' Fear of crime: who is most vulnerable ' *Journal of Criminal Justice* 10, 199–209
Tuan Y F (1974) *Topophilia* (Prentice Hall, London)
Valentine G M (forthcoming) *Women's fear of violence in public space* PhD thesis, Department of Geography, University of Reading
Waltzer M (1986) ' Public space: a discussion on the shape of our cities ' *Dissent* (Fall), 470–94
Warr M (1985) ' Fear of rape among urban women ' *Social Problems* 32, 238–50
Wise S and Stanley L (1987) *Georgie porgie: sexual harassment in everyday life*. (Pandora Press, London)

The development of geographical information systems for locality planning in health care

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Summary *An earlier paper reviewed the growth in locality health planning in this country and elsewhere and considered a case study in Tower Hamlets District Health Authority in East London. This paper considers some of the information requirements for locality planning, and outlines some of the characteristics of a suitable Geographical Information System (GIS) for local health planning using the same district as an example for illustrating particular issues. Some priorities for future research are identified.*

The need for information systems for locality planning

An earlier paper (Taket and Curtis 1989) examined the objectives of locality planning and the factors influencing the delineation of the localities in Tower Hamlets District Health Authority, East London. This part of the discussion concerns the information requirements for locality planning (based on small geographical zones within a District). The same District Health Authority (DHA) is used here as an example of the development of an information system for this purpose. The system is envisaged as having an important geographical component, and operating in some respects as a Geographical Information System.

Geographical Information Systems (GIS) have advanced rapidly in recent years. They have already moved beyond functions which were essentially forms of automated cartography, using data collated for identical geographical zones. Now GIS exist which can manipulate and analyse data, and which are much more flexible in dealing with data for geographical zones which are not identical. (Green, Finch and Wiggins 1985). All of these systems depend on geocoded data, and in the National Health Service (NHS), as in other spheres of activity, emphasis is now being placed on the importance of including geocodes in health information systems, to permit geographical data linkage. The Steering Group on Health Services Information (DHSS 1985) (chaired by Mrs Körner) has for example, recommended more systematic inclusion into activity data for hospital and community health services of the post code of each patient's home.

While sophisticated use of GIS for health service management information is clearly a possibility in the future, there is a more immediate need in many DHAs for basic GIS functions; access to a data set collated for zones which are relevant to health care organisation, information in a form which is readily accessible and understandable to novice computer users and the capacity to automatically display geographically linked data in the form of maps, graphs and numerical lists. The prototype considered here is designed to carry out these basic functions in the first instance, although it could be