

The surveillance zone, defined as space within the visual field of home, assumes increasing significance as people grow older and spend more time at home. Using insights from a 3 year participant observation study in an Appalachian community, this paper describes characteristics of the surveillance zone and explores its meaning for old people. The process of monitoring events outside, the emergence of watchful reciprocal social networks, and the potential of the surveillance zone for generating a sense of personal identity, are explored. Implications for locating and designing environments for the elderly are traced.

The Surveillance Zone as Meaningful Space for the Aged¹

Graham D. Rowles, PhD²

Yeah, everybody who comes in here says, "My goodness, you can see all over town. You really have it nice here." . . . I don't know what I'd done if it hadn't been for this window you know . . . I think if everybody had something like this, they wouldn't feel so closed in.

Peggy, 71 years old

The outside space is more important than the inside space, I think.

Lucinda, 64 years old

In recent years there has been much concern with exploring the meaning of "home" as a distinctive realm of space (Bachelard, 1969; Bollnow, 1967; Buttner, 1980; Eliade, 1959; Loyd, 1975; Porteous, 1976; Rakoff, 1977). It has been argued that home may come to assume considerable emotional significance for old people (Gelwicks, 1970; Holcomb, 1980). However, concern with the meaning of home has tended to blind us to the importance of other spaces.

Immediately outside each dwelling is an area that can be viewed from the windows. This space within the visual field of a residence may be formally defined as the *surveillance zone*. This zone mediates between the sacred space of home and the more remote community environment beyond the visual field. For many old people, particularly the housebound who may spend much time at the window, the surveillance zone represents a primary focus of participation in the world beyond the threshold.

Several studies have suggested the significance of the surveillance zone as the area in which the activities of young children can be monitored by their parents (Fanning, 1967; Hart, 1979; Jacobs, 1961; Jephcott, 1971; Michelson, 1969). However, little in-depth study of the structure, use, and meaning of this space for old people has been undertaken, even though in a 1974 national study of housing for the elderly, 46.8% of the sample interviewed responded positively to the question, "Do you spend much time sitting by a window to watch people or views outside?" (Howell, 1976). In this study the surveillance zone is explored as an arena for "watching" and "being watched," in which visual reciprocity facilitates the emergence and maintenance of practical and social support from neighbors, and as a space which often comes to provide an important source of ongoing environmental participation and a sense of identity for the old person. These observations are viewed as themes within a developmental perspective on the role of the surveillance zone in the old person/environment transaction. Finally, some implications for the location, design, and landscaping of housing for the elderly are considered.

Growing Old in an Appalachian Community

The environmental experience of old people living in Colton,³ a dying Appalachian mountain community, has been explored over the past 3 years (Rowles, 1980a). Approximately 400

¹The research reported in this paper was supported by a grant from the NIA (AG 00862).

²Asst. Prof. of Geography, Dept. of Geology & Geography, West Virginia Univ., Morgantown, WV 26506.

³Colton is a pseudonym as are all proper names in this paper.

people live here. Much of the population consists of elderly persons who remain despite a deteriorating physical setting. Using an experiential methodology (Rowles, 1978b), 15 long time residents of Colton ranging in age from 64 to 93 years have been worked with intensively. Through three summers residence in the community and weekly visits during the remainder of the past 3 years, the author has established an interpersonal climate in which it has been possible to reveal dimensions of experience that are customarily taken-for-granted. In exploring the significance of surveillance zones in these old people's lives, lengthy tape-recorded conversations have been complemented by semi-structured interviews, discussions with neighbors, participant observation, the mapping of surveillance zones, and photography, (including aerial photography to define spatial relationships within the area surrounding each home).

Characteristics of Surveillance Zones

It is useful to start by describing physical characteristics of surveillance zones in order to provide a measure of the arena potentially available to each old person. There is considerable variation among the participants in the maximum visual range of surveillance (Table 1).

Table 1. Surveillance Zone Characteristics.

Participant	Maximum Visual Range (Yards)	Number of Windows Used	Orientation of Windows Used (Front/Back/Sides)		
Jennifer Rose	50	1	X		
Audrey	200	4	X	X	1
Nell	200	2	X		
Rebecca	200	2	X	X	
Beatrice**	400	3	X		2
Walter**	400***	2	X		1
Nakoma	400	3	X		2
Lucinda* (1)	800	1	X		
(2)	400	2	X	X	
Asef	800***	3	X	X	1
Mary	800	4	X	X	1
Bill	800	2	X		1
JoNell	1200	—	no evidence		
Bertha	1200	1	X		
Peggy	1200	2	X		1
Dan	1600	3	X		2

*Lucinda relocated during the course of the research.

**Married couple.

***Reduced by poor vision.

For some, like 89 year old Bertha, the surveillance zone, as a result of home location and topography, provides visual access across the entire valley. At the other extreme, for Jennifer Rose, 70 years old, living on a wooded stretch of highway outside Colton, the available visual field is limited to a few yards and incorporates no inhabited buildings. Most participants fall between these extremes. Their visual field embraces several adjacent houses.

Surveillance potential involves more than proximity. Consideration of the area surrounding 81 year old Audrey's home reveals important directional variation (Fig. 1). Audrey is surrounded by residences. She has a clear view of Jean and Conrad's house and the home of Elvin and John (two men in their fifties) who share a home to the rear of her house. However, visual access to her closest neighbors' home (Vicki and Jim's) is limited by the position of an evergreen tree and by the nonalignment of windows between the two homes. These barriers, reinforced by incompatible door orientation, have a significant impact on her relationship with this neighbor:

She doesn't watch me like the others do, because she can't see from her window . . . She said, "I'm sorry. I don't think I do enough for you like the other neighbors do." . . . She said, "I look over at night, but you know the way my windows are arranged, from the living room I can't see at all." . . . I said, "Why Vicki, you really are not my next door neighbor either because there is no door opening from your house towards me." When they come out, they go out on the other side, they never come over on this side.

The seasons also affect the visual range of surveillance. In the summer when the leaves are on the trees Audrey cannot see across the valley to the home of Benny, the youth for whom she babysat when he was a child and with whom she maintains a strong relationship as a surrogate "grandmother."

One effect of such surveillance zone characteristics is that each participant has tended to develop a pattern of surveillance favoring particular directions, and using only those windows providing a good visual panorama (Table 1). Audrey uses windows in the front, in the back, and to one side of her house. Other participants make frequent use of a single window. In sum, each individual's home provides a distinctive potential for visual participation in the space outside. How exactly is the surveillance

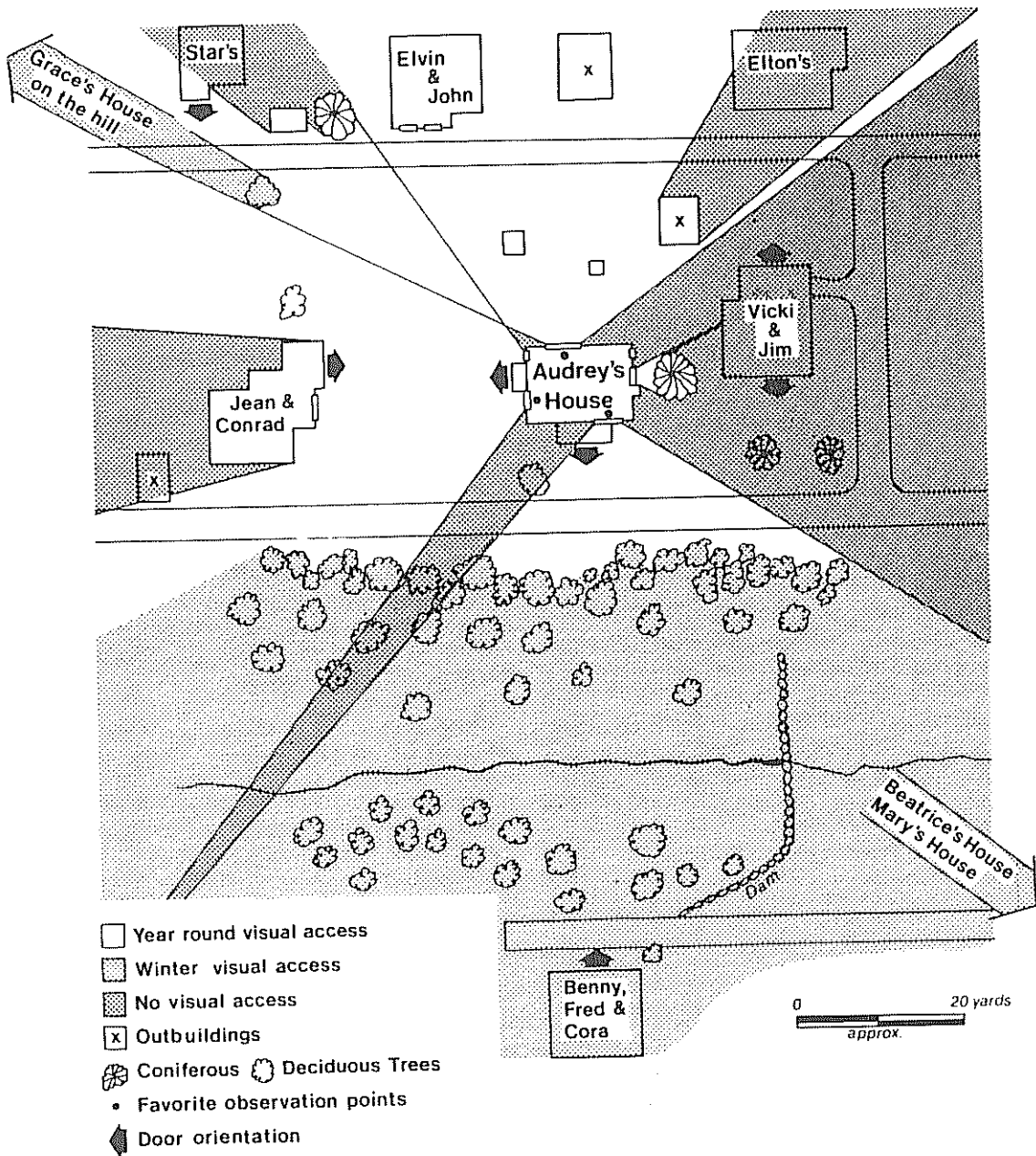


Fig. 1. Audrey's surveillance zone.

zone transformed from an opportunity into a resource?

Use of the Surveillance Zone

Much time is spent "watching." Many of the participants profess to wandering from window to window during the day as they monitor events outside. In addition to the change of

vista this affords, it also reduces the chances of being perceived as "nosy." As Lucinda notes:

They always told me it was bad manners to stare out the window at somebody. If I'd look out the window, I'd kind of do it from behind the curtain.

Some watching has a practical purpose. Bertha watches for the newspaper carrier;

Audrey looks for the mailman; 93 year old Asel oversees a garden that is the center of his life. In the summer, he will stand at his kitchen sink and watch for stray dogs or other predators which might disrupt the order of his immaculate rows of vegetables. Monitoring the activities of children is a favorite pastime. This may on occasion take a more active form as the old person, acting as surrogate parent, intervenes to arbitrate disputes or impose sanctions on unruly behavior.

Sometimes watching can lead to actions transcending the "nosiness" of which old people are often accused. Nell, 84 years old, recounts an incident related to monitoring activities outside the house at the foot of the hillside where she lives:

One evening they came home from work, and Karen (their child) got out of this side of the car, and I thought, it looked like she didn't shut the door . . . I didn't pay much attention to it, I was busy crocheting in the living room and had my television on. About 9:00 p.m., I came out here and it looked like there was a light on in the car. They had gone to bed. I could tell, their lights were all out. So, I called down, I said, "Peter, this is your nosy neighbor, Nell, on the hill. Looks to me like there is a light on in your car." He said, "Oh my goodness." He said if I hadn't called him, the battery would have gone clear down. He said, "Well, I'm glad we've got nosy neighbors like that."

Many old people engage in a process of "setting up" for watching. They select windows providing the best vantage and then arrange their furniture and provide themselves with supports to facilitate monitoring space outside. Generally, windows are selected to provide for viewing active rather than passive scenes. Supports for observation range from prudent placement of a chair to more elaborate and frequently unconscious forms of "setting up." Audrey, whose balance is sometimes a little unsteady, likes to stand leaning against the back of a chair placed by her front window. Peggy has her telephone, her C.B. transmitter, notepads and pencils, her latest sewing project, and the television remote control all within easy arm's reach. Perhaps the best example of this process is provided by the way in which, aided by her family, Bertha set herself up during an illness when she was confined to her bed (Fig. 2). The entire room was rearranged so that she had access to all her needs within arm's length of her bed. A key component of this

"setting up" was placement of the bed to facilitate watching events outside. She could see who came to the door, keep an eye on her neighbors, and watch the trains.

During the summer, the process of surveillance is made easier by the ability to sit outside and to watch and be watched from the porch (Lozier & Althouse, 1975). As Audrey notes:

I can see everybody that goes by. Everybody waves to me. And I don't know some of the people, but they wave too . . . I guess they feel a little old lady is sitting there. They think, "well, maybe, she's lonesome."

A second important use of the surveillance zone stems from this visual reciprocity. In addition to watching, there is the important support provided by "being watched." Most of the Colton elderly have established close relationships with neighbors in their surveillance zone that incorporate systems of signals to monitor each other's well-being. Audrey provides a good example of such a system as she describes how she is watched by neighbors to the rear of her home.

They watch for the curtain to be opened in the morning. He (Elvin) told me that. He said, "do you know, you get up about eight?" I said, "yes, I do." He said, "well, at that time, I'm usually standing there at my kitchen window with a cup of coffee in my hand watching for your curtains to be opened."

She went on to describe how Jean, another neighbor, watched for her to open the drapes

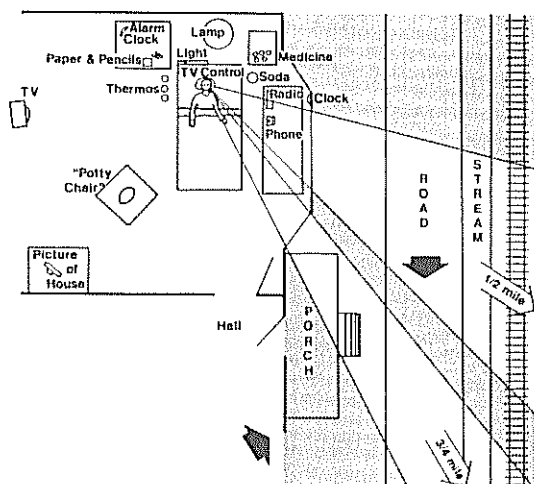


Fig. 2. "Setting up": Bertha's surveillance zone.

in her bedroom each morning: "There's a signal. I couldn't lay in bed sick very long, because they'd find me," she concluded. A sense of security derives from such knowledge.

Continual visual contact between the old person and neighbors often facilitates the development of *practical support*. This is especially important for the many old residents of Colton who live alone. Nell provides an excellent example of such everyday support. Neighbors within her surveillance zone bring in the mail from the roadside mailbox, pick up items from the grocery store, provide assistance with interpreting tax forms, and fix leaky faucets. They also provide opportunities for getting out. Like many of her peers, Nell is transported to church by neighbors within the surveillance zone. During winter, the level of practical support is sufficient to sustain her for several months without ever leaving home.

In some cases, support is available from family members. It enables the old person to remain independent longer than might otherwise be possible. Asel's youngest daughter lives within view of his kitchen window. Each day she brings his lunch at noon. Her husband calls in before he leaves for work to bring the medicine Asel might otherwise forget to take.

Practical support from within the surveillance zone is especially important during crisis situations. When a youth broke into the rear of her house, Nell had just enough time to telephone Bill on the street below before she was assaulted. He was able to reach her home in less than a minute. This probably saved her from injuries more severe than the cracked ribs she sustained. Less spectacular emergencies may also be dealt with by neighbors within the surveillance zone. In time of illness, they will handle visitors, call the old person's family to keep them informed of their loved one's status, and if hospitalization is necessary, will often take in the mail, service the furnace, and in general, act as guardians of the old person's home.

Practical support invariably is coupled with strong *social support*, sustained through frequent visits and telephone calls. Audrey talks about the visits she receives from her neighbor Elvin:

About every Sunday afternoon, he comes down for an hour. If there is anybody here, he doesn't. If he sees a car he doesn't. But if not, on Sunday, he'll come down for an hour to see me. I enjoy him.

Indeed, over time, as a cluster of people within the old person's surveillance zone develop stronger and stronger functional and social ties, and as a sense of mutual obligation evolves, this arena gradually becomes a distinctive social space (Buttimer, 1969; Lozier & Althouse, 1975).

The Surveillance Zone as a Source of Meaning

To fully understand the significance of surveillance zones in the lives of the Colton elderly, it is necessary to view this space in the context of the old person's total life experience. When Audrey stands and gazes at the falling snow, and when Asel sits watching the workmen remove rubble from the burnt out shell of the house next door — what are they thinking? How does this activity fit into their lives?

First, the space, and the process of surveillance it fosters, provides a crucial link between the old person and the contemporary world outside, a sense of ongoing *participation* in events. Monitoring the rhythm of life in the contemporary space provides a "field of caring." Often involvement extends to vicarious participation. As Audrey wistfully observes:

You know after you've gone to church all your life, it's hard not to be able to. I sit here and look out the window and watch them all go, and then I turn the TV on and listen. It's the next best thing . . . Sunday, I look out more, because I'm watching people go to church. Since I can't go to church, I watch the cars go by, watch Jean and Conrad leaving, McCories, all of them . . . and then at noon, I watch them all come back.

Asel reveals the same process when he explains how he sits watching the men work on the demolition of the house next door and works out how he would tackle the job. For a time he can participate vicariously, almost turning back the clock.

Participation in outside space has an historical as well as a contemporary aspect. This may be especially important to old people immersed in reminiscence, or engaged in the process of life review that studies have suggested are important facets of old age (Butler, 1963; Lewis, 1971; Lieberman & Falk, 1971; McMahan & Rhudick, 1967; Merriam, 1980). The surveillance zone may provide a mirror to the old person's life. If the person has lived in the community for many years, as is the case with most of the participants in this research, physical cues within the visual field may act as symbols

of the past and provide a stimulus to reflection. Within Jennifer Rose's visual field, there is a half constructed garage her husband started to build 30 years ago. The project was never completed. It remains as a physical legacy that stirs fond memories. Beatrice, 84 years old, when she looks out of her front room can see the broken dam that many years ago impounded many gallons of water. In the winter this provided a skating rink for the children. The pond is now filled with silt, but each time she looks at it, there is the potential to revive memories of her youth. The scene within the surveillance zone also serves to sustain memories of people who inhabited this space. I found that Nell could trace an elaborate social history of each home within her surveillance zone, replete with vivid accounts of incidents that transpired many decades ago.

Contemporary events within the surveillance zone may also trigger reminiscence and encourage a form of "gazing" behavior I have often noted as old people stare out of their windows, seemingly becoming oblivious to my presence. I asked Audrey to share her thoughts as she stared out at a recent snowfall: "I thought about my poor mother doing all that dressing on me, and putting me out there. And oh, just little things." Such "little things" may be extremely important in maintaining a sense of identity.

Developmental Significance of Surveillance Zones

In seeking to assess the significance of the surveillance zone in old people's lives, it is useful to adopt a developmental perspective and to consider this space in relation to changing activity levels over the lifespan (Fig. 3). We may hypothesize that the surveillance zone assumes particular importance during two stages of life, although for different reasons. In child-

hood, this space is the arena in which the child is allowed to play; an arena defined by parental sanctions of surveillance which limit the wanderings of the child. Space within sight of home may thus come to assume special significance (Hart, 1979). As the child grows and is permitted to venture farther afield, this space becomes progressively less important. During adulthood, because much time is spent away from home, the surveillance zone may be of limited consequence.

As physiological capability declines in old age the surveillance zone once again assumes increasing importance, one of a variety of transitions that occur in the old person/environment transaction as the individual becomes increasingly environmentally vulnerable. Most views of aging acknowledge reduced mobility and a gradual constriction of the old person's activity space (Montgomery, 1977; Pastalan & Carson, 1970; Windley et al., 1975). As this transition occurs, progressively more time is spent at home. However, this is something of an oversimplification. There are a variety of compensations in other dimensions of the old person's environmental experience (Rowles, 1978a, 1980b, 1981). In "an hypothesis of changing emphasis" I have suggested that vicarious involvement in environments displaced in space (the worlds of children) and/or time (places of one's past) often becomes a substitute for physical participation. As these transitions occur, there is some reorientation in the functional role of particular realms of space and in the affective meaning with which they are imbued. Home becomes a more salient space in terms of both the individual's time and emotional investment. More important in the context of this discussion, adjacent space, the surveillance zone, becomes a more pervasive component of the individual's lifespaces as it begins to assume the array of functions I have described. For the housebound or institutionalized old person, the surveillance zone may come to represent the major arena of direct contact with the world outside (Rowles, 1979). Considering these transitions in association with other postulated developmental changes — an increased propensity for reminiscence and the process of life review (Butler, 1963; Merriam, 1980) — it becomes possible to see how the surveillance zone, in addition to its practical and social significance can become a focus of meaning for the elderly long time resident of a community.

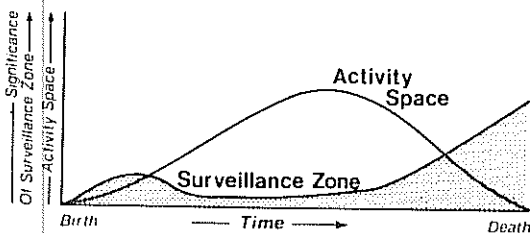


Fig. 3. Developmental significance of the surveillance zone.

Some Implications

There is considerable variation in the characteristics, use, and meaning of the surveillance zone among the old people of Colton. This raises important research questions. Is the surveillance zone important to *all* old people? Is it experienced in the same manner, or are particular themes within surveillance zone utilization more significant to certain subgroups? Does the significance of the surveillance zone vary systematically with age or health status? What role does personality play in surveillance zone utilization? To what extent is interpersonal variation merely a function of location and the different surveillance zone potentials generated by alternative housing arrangements and designs? The Colton elderly are long-time residents of old single family housing stock. They have had the time to accumulate the temporal depth of meaning within their surveillance zones that makes them reservoirs of cues to reflection. Are old people without similar length of residence, or those who relocate to new housing, able to harness surveillance zones, or must they forego the identity reinforcing function of this space? What is the role of this space in other environmental settings? In urban neighborhoods? In special housing for the elderly? In institutional settings?

Several philosophical dilemmas also emerge. One of the most interesting concerns attitudes toward old people. It is perhaps appropriate to reassess a prevalent association between the watchful elderly neighbor and images of "the busybody": such behavior may be no more than an adaptation to more limited personal circumstances. On the other hand, this acknowledgement raises the crucial problem of reconciling legitimate privacy needs with the supportive potential of surveillance. Assuming such dilemmas can be resolved, what are the implications for providing improved living situations for old people?

First, there are ramifications with regard to the *location and orientation of new housing*. Siting in settings surrounded by other homes is clearly desirable. Prudent orientation can also facilitate the creation and use of surveillance zones, although here the issue of privacy must be considered, particularly in an intergenerational context. Some young families may resent the prospect of being constantly watched, however beneficial this may be for their elderly neighbor. Location and orientation affording the potential for overlooking "active" scenes

is also preferable to the provision of tranquil vistas of rustic beauty.

Advantages of location and orientation can be complemented by *housing design* (Howell, 1980). Complementary door orientation facilitates both visual and social contact. The height of window ledges and the size of windows can also foster or preclude surveillance. Bertha explains why she adamantly refused to move to Dallas to live in her daughter's modern ranch style house:

The windows is all up so high that you can't see out. These new houses, you know, the windows, they aren't down like this. They're up high, and all the people keeps draperies and everything all over the windows, so you can't see out. And I like to see out. If I had to stay in that house, all that time, and couldn't see out, and couldn't go no place . . . I'm better at home.

One strategy to overcome this problem, utilized by Peggy, was replacement of her small living room window with a picture window with a lower sill that provided a clear vista across the center of Colton. Interior design and arrangement of rooms in both new and refurbished housing could also be undertaken to more fully acknowledge the importance of surveillance zones and facilitate the process of "setting up."

Moving outside the house, greater sensitivity to the *content and landscaping of space within the surveillance zone* can enhance the environmental experience of the old person. The need for such awareness is illustrated by Beatrice as she talks about the impact of her neighbor Jeff's recent construction of a workshop on the side of his house on her relationship with his wife, Sarah:

Ever since Jeff built all that stuff in between us, we said we might as well live ten miles apart. We don't see each other you know. We used to look out the kitchen window and wave, and point and make signs. And we could tell when they got up, and they could tell when we got up and went to bed . . . It's different now.

How often do we unwittingly impoverish the lives of old people and increase their isolation by closing them in through construction, design modification, or merely by planting a tree?

Perhaps the most important implications are attitudinal. It is necessary to seek deeper understanding of the particular meaning of the surveillance zone to old people. To the child, space immediately beyond the threshold is

a source of adventure, the scene of first explorations and at the same time an arena of security under mother's watchful gaze. To the old person, it may become not only a source of functional support but also a symbol of continuity and continuing participation within a world from which one is physically withdrawing. Yet we have an unfortunate propensity for homogenizing space and viewing its use in unidimensional terms. As we pass by the house where the lady is always peeking out from behind the curtain, we may feel a certain resentment at her nosiness. On her part, she may feel a twinge of guilt at her behavior. In reality, neither party understands the significance of a scenario that is far from trivial.

References

- Bachelard, G. *The poetics of space*. Beacon Press, Boston, 1969.
- Bolinow, O. Lived space. In N. Lawrence & D. O'Connor, *Readings in existential phenomenology*. Prentice Hall, Englewood Cliffs, NJ, 1967.
- Butler, R. N. The life review: An interpretation of reminiscence in the aged. *Psychiatry*, 1963, 26, 65-76.
- Buttimer, A. Social space in interdisciplinary perspective. *Geographical Review*, 1969, 59, 417-426.
- Buttimer, A. Home, reach, and the sense of place. In A. Buttimer & D. Seamon (Eds.), *The human experience of space and place*. Croom Helm, London, 1980.
- Eliade, M. *The sacred and the profane*. Harcourt, Brace & World, Inc., New York, 1959.
- Fanning, D. M. Families in flats. *British Medical Journal*, 1967, 18, 382-386.
- Gelwicks, L. E. Home range and the use of space by an aging population. In L. A. Pastalan & D. H. Carson (Eds.), *Spatial behavior of older people*. Univ. of Michigan-Wayne State Univ., Inst. of Gerontology, Ann Arbor, 1970.
- Hart, R. *Children's experience of place*. Irvington, New York, 1979.
- Holcomb, B., & Parkoff, B. *Sex differences in the role of home place among the elderly*. Paper presented at the Annual National Meetings, Assn. of American Geographers, Louisville, KY, 1980.
- Howell, S. C. *Designing for the elderly: Windows*. Design evaluation project, Dept. of Architecture, Massachusetts Inst. of Technology, Cambridge, 1976.
- Howell, S. C. *Designing for aging*. M.I.T. Press, Cambridge, MA, 1980.
- Jacobs, J. *The death and life of great American cities*. Vintage Books, New York, 1961.
- Jephcott, P. *Homes in high flats*. Oliver & Boyd, Edinburgh, 1971.
- Lewis, C. N. Reminiscing and self concept in old age. *Journal of Gerontology*, 1971, 26, 240-243.
- Lieberman, M. A., & Falk, J. M. The remembered past as a source of data for research on the life cycle. *Human Development*, 1971, 14, 132-141.
- Lozier, J., & Althouse, R. Retirement to the porch in rural Appalachia. *International Journal of Aging and Human Development*, 1975, VI, 7-15.
- McMahon, A. W., & Rhudick, P. J. Reminiscing in the aged: An adaptational response. In S. Levin & R. J. Kahana (Eds.), *Psychodynamic studies on aging: Creativity, reminiscence and dying*. International Universities Press, New York, 1967.
- Merriam, S. The concept and function of reminiscence: A review of the research. *Gerontologist*, 1980, 20, 604-608.
- Michelson, W. *Man and his urban environment: A sociological approach*. Addison-Wesley, Reading, MA, 1970.
- Montgomery, J. E. The housing patterns of older people. In R. Kalish (Ed.), *The later years: Social applications of gerontology*. Brooks/Cole, Monterey, CA, 1977.
- Pastalan, L. A., & Carson, D. H. (Eds.). *Spatial behavior of older people*. Univ. of Michigan-Wayne State Univ., Inst. of Gerontology, Ann Arbor, 1970.
- Porteous, J. D. Home: The territorial core. *Geographical Review*, 1976, 66, 383-390.
- Rakoff, R. M. Ideology in everyday life: The meaning of the house. *Politics and Society*, 1977, 7, 85-104.
- Rowles, G. D. *Prisoners of space? Exploring the geographical experience of older people*. Westview Press, Boulder, CO, 1978. (a)
- Rowles, G. D. Reflections on experiential fieldwork. In D. Ley & M. Samuels (Eds.), *Humanistic geography: Prospects and problems*. Maaroufa Press, Chicago, 1978. (b)
- Rowles, G. D. The last new home: Facilitating the older person's adjustment to institutional space. In S. Golant (Ed.), *Location and environment of the elderly population*. V.H. Winston & Sons, Washington, DC, 1979.
- Rowles, G. D. Growing old 'inside': Aging and attachment to place in an Appalachian community. In N. Datan & N. Lohmann (Eds.), *Transitions of aging*. Academic Press, New York, 1980. (a)
- Rowles, G. D. Toward a geography of growing old. In A. Buttimer & D. Seamon (Eds.), *The human experience of space and place*. Croom Helm, London, 1980. (b)
- Rowles, G. D. Geographical perspectives on human development. *Human Development*, 1981, 24, 67-76.
- Windley, P. G., Byerts, T. O., & Ernst, F. G. *Theory development in environment and aging*. Gerontological Society, Washington, DC, 1975.