

used; vacuum cleaners have been given loud motors to impress people with their power. Far from being designed to accomplish a specific task, some appliances are designed expressly for sale as moderately priced gifts from husband to wife and in fact are rarely used. In these ways the inequalities between women and men, and the subordination of the private to the public sphere are reflected in the very design processes of domestic technology.

In tracing the history of various domestic appliances, Forty (1986) shows how manufacturers have designed their products to represent prevailing ideologies of hygiene and housework. Thus, in the 1930s and 1940s manufacturers styled appliances in forms reminiscent of factory or industrial equipment to emphasize the labour-saving efficiency which they claimed for their products. At that time, domestic equipment was still intended principally for use by servants. However such designs made housework look disturbingly like real work and in the 1950s, when many of the people who bought these appliances were actually working in factories, the physical appearance of appliances changed. A new kind of aesthetic for domestic appliances emerged which was discreet, smooth, and with the untidy, mechanical workings of the machine covered from view in grey or white boxes.<sup>14</sup> The now standard domestic style of domestic appliances '... suited the deceptions and contradictions of housework well, for their appearance raised no comparisons with machine tools or office equipment and preserved the illusion that housework was an elevated and noble activity', of housework not being work (Forty, 1986, p. 219).

Throughout this chapter I have been examining the way in which the gender division of our society has affected technological change in the home. A crucial point is that the relationship between technological and social change is fundamentally indeterminate. The designers and promoters of a technology cannot completely predict or control its final uses. Technology may well lead a 'double life' '... one which conforms to the intentions of designers and interests of power and another which contradicts them - proceeding behind the backs of their architects to yield unintended consequences and unanticipated possibilities' (Noble, 1984, p. 325).

A good illustration of how this double life might operate, and how women can actively subvert the original purposes of a technology, is provided by the diffusion of the telephone. In a study of the American history of the telephone, Claude Fischer (1988) shows that there was a generation-long mismatch between how the consumers used the telephone and how the industry men thought it should be used. Although sociability (phoning relatives and friends) was and still is

the main use of the residential telephone, the telephone industry resisted such uses until the 1920s, condemning this use of the technology for 'trivial gossip'. Until that time the telephone was sold as a practical business and household tool. When the promoters of the telephone finally began to advertise its use for sociability, this was at least partly in response to subscribers' insistent and innovative uses of the technology for personal conversation.

Fischer explains this time lag in the industry's attitude toward sociability in terms of the cultural 'mind-set' of the telephone men. The people who developed, built, and marketed telephone systems were predominantly telegraph men. They therefore assumed that the telephone's main use would be to directly replicate that of the parent technology, the telegraph. In this context, people in the industry reasonably considered telephone 'visiting' to be an abuse or trivialization of the service. It did not fit with their understandings of what the technology was supposed to be used for.

The issue of sociability was also tied up with gender. It was women in particular who were attracted to the telephone to reduce their loneliness and isolation and to free their time from unnecessary travel. When industry men criticized 'frivolous' conversation on the telephone, they almost always referred to the speaker as 'she'. A 1930s survey found that whereas men mainly wanted a telephone for business reasons, women ranked talking to kin and friends first (Fischer, 1988, p. 51).

Women's relationship to the telephone is still different to men's in that women use the telephone more because of their confinement at home with small children, because they have the responsibility for maintaining family and social relations and possibly because of their fear of crime in the streets (Rakow, 1988). A recent Australian survey concluded that 'ongoing telephone communication between female family members constitutes an important part of their support structure and contributes significantly to their sense of well-being, security, stability, and self-esteem' (Moyal, 1989, p. 12). The telephone has increased women's access to each other and the outside world. In this way the telephone may well have improved the quality of women's home lives more than many other domestic technologies.<sup>15</sup>

### **Conclusion: More Work for Social Scientists?**

I started this chapter by noting how belated has been the interest in domestic technology and household relations. There is now a

substantial body of literature on the history of housework and the division of labour in the home. In recent years too there has been growing interest in domestic technology both among feminist theorists and, from a different perspective, among post-industrial society theorists. This work is still relatively underdeveloped and much of the literature shares a technicist orientation whether optimistic or pessimistic in outlook. Technology is commonly portrayed as the prime mover in social change, carrying people in its wake, for better or worse. But history is littered with examples of alternative ways of organizing housework and with alternative designs for machines we now take for granted. In retrieving these lost options from obscurity the centrality of people's actions and choices is highlighted and with them the social shaping of technology that furnishes our lives.

An adequate analysis of the social shaping of domestic technology cannot be conducted only at the level of the design of individual technologies. The significance of domestic technology lies in its location at the interface of public and private worlds. The fact that men in the public sphere of industry, invention and commerce design and produce technology for use by women in the private domestic sphere, reflects and embodies a complex web of patriarchal and capitalist relations. Although mechanization has transformed the home, it has not liberated women from domestic drudgery in any straightforward way. Time budget research leaves us wondering whether technology has led to more flexibility in housework or to its intensification. To further our understanding of these issues we need more qualitative research on how people organize housework and use technology in a variety of household forms. Such research should distinguish between different types of domestic technology and examine the significance of gender in people's affinity with technology. Finally, the designers of domestic technology themselves have so far been subjected to very little investigation; an examination of their backgrounds, interests, and motivation may shed light on the development of particular products. By refusing to take technologies for granted we help to make visible the relations of structural inequality that give rise to them.

This portrait of domestic technology is certainly incomplete. In this chapter I have concentrated on domestic technology as a set of physical objects or artefacts and argued that gendered meanings are encoded in the design process. This process involves not only specifying the user but also the appropriate location of technologies

within the house. For example, domestic appliances 'belong' in the kitchen, along with women, and communications technology such as the television are found in the 'family room'. This signals the way in which the physical form and spatial arrangement of housing itself expresses assumptions about the nature of domestic life – an issue to be taken up in the next chapter.

## NOTES

- 1 Ravetz (1965) is one of the earliest articles inquiring into the historical impact of domestic technology on housework. For detailed references, see Cowan's (1983) bibliographic essays at the back of the book and McNeil (1987, pp. 229–30). See also Bose et al. (1984), for a comprehensive review of the contemporary research. As they point out, this research is limited by its focus on the 'ideal' white middle-class family, and contains virtually no evidence on variations across class and ethnic groups; neither does it encompass single-parent households or people living alone. The data is also limited by its failure to reflect different stages of the life cycle. A similar problem exists with much of the historical literature, as McGaw (1982, p. 813) notes. This has led many authors to exaggerate the rate of diffusion of domestic devices.
- 2 See also Ruth Schwartz Cowan (1976 and 1979).
- 3 There is now quite an extensive feminist literature on the domestic science movement and its attempt to elevate the status of housekeeping. See, for example, Ehrenreich and English (1975, 1979) and Margolis (1985) on America; Davidoff (1976) and Arnold and Burr (1985) on Britain; and Reiger (1985) for Australia. Reiger's book, *The Disenchantment of the Home*, is the most interesting sociologically as she attempts to combine a feminist analysis of the role of the professional and technical experts of the period with a critique of instrumental reason. The infant welfare and domestic science movements are seen as being part of a general extension of 'technical rationality' in the modern world.
- 4 I am only referring to domestic technology here, as clearly medical technology is central to demographic changes in life expectancy and to birth control.
- 5 See Bose et al. (1984), Rothschild (1983), and Thrall (1982).
- 6 In my own qualitative study (1983) in a small market town in Norfolk, England, I found that men always did the 'outdoor' jobs – mowing the lawn, gardening, fixing the car, household repairs and, to a lesser extent, painting and decorating. While the husbands did have a responsibility for performing certain household tasks, these had very different characteristics from those the women performed. Of course, this contrast is exaggerated and depends partly on conventional conceptions;

lawn-mowing, for instance, is just as continuous as window cleaning. Nevertheless, there is a general distinction which is reinforced by popular evaluations. Indeed, these evaluations are intrinsic to the domestic division of labour.

- 7 The microwave cooker is another interesting case where further research is needed to show whether it results in men being more prepared to take up some cooking activities or whether it increases expectations so that mothers cook separate meals for different members of the family at different times.
- 8 A fourth residual category, odd jobs, is not considered in the article.
- 9 This might lead one to expect that women in the paid labour force might use their income to substitute consumer durables for domestic labour. Surprisingly however women in employment have slightly less domestic equipment than full-time housewives. From an analysis of the Northampton household survey data, collected in 1987 as part of the British ESRC Social Change in Economic Life Initiative, Sara Horrell found that there were no significant differences in the ownership of consumer durables between working women and non-working women.
- 10 In her 1976 essay, Cowan has a tendency to adopt this latter position, seeing the corporate advertisers 'the ideologues of the 1920s' as the agents which encouraged American housewives literally to buy the mechanization of the home. The interest of appliance manufacturers in mass markets coincided exactly with the ideological preoccupations of the domestic science advisers, some of whom even entered into employment with appliance companies. According to W. and D. Andrews (1974), nineteenth-century American women, anxious to elevate their status, believed that technology was a powerful ally.
- 11 The Australian Consumer Association magazine, *Choice*, recently found that many appliances were useless and that a lot of jobs were better done manually. For example, they found that a simple manual citrus squeezer was overall better than many of the electric gadgets.
- 12 A notable exception is Hardyment's (1988) book on domestic inventions in Britain which documents a multitude of discarded designs, such as sewing machines, washing machines, ovens, irons, wringers, mangles and vacuum cleaners, invented and developed between 1850 and 1950. Unfortunately, the book contains little analysis of the forces which shaped their development. At one point, the author makes the intriguing argument that it was the small electric motor (introduced in the 1920s) more than any other invention which led to the development of domestic machinery along private rather than communal channels. But Hardyment concludes that 'the potential of any machine should lie in the mind of its user rather than its maker' (p. 199), echoing her earlier statement that women should seize the technological means to liberate themselves. It is disappointing that in a book devoted to the history of domestic machines so little attention is paid to the gender interests involved in their production.

- 13 This point is made by Megan Hicks, 'Microwave Ovens' (MSc dissertation, University of New South Wales, 1987).
- 14 One can only speculate as to whether covering up the mechanical workings of appliances assisted in alienating women from understanding these machines and how to mend them.
- 15 However, the unintended consequences of a technology are not always positive. The diffusion of the telephone has facilitated the electronic intrusion of pornography into the home. Not only are abusive and harassing telephone calls made largely by men to women, but new sexual services are being made available. The French post office's Minitel service, which is a small television screen linked to the telephone, has seen a massive 'pink message service' arise. When it was introduced over ten years ago, the Minitel system was intended to replace the telephone directory. Since then it has developed thousands of services, the most popular being pornographic conversations and sexual dating via the electronic mail. When complaints have been made the French post office claim that they can do nothing to censor hardcore pornography as it is part of private conversations. One wonders how this might affect gender relations in the home.