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# Comfort, Cleanliness and Convenience

## The Social Organization of Normality

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For John and Jocelyn Shove, with love.

# 1

# Consumption, Everyday Life and Sustainability

To outsiders, sociology has a reputation for dealing with the everyday and the ordinary. This is often cast as a thinly veiled criticism: who needs a whole discipline to understand what people do as a matter of course? In the context of this book, such a reputation represents a challenge and an ideal to live up to. Turning the spotlight back on generally invisible forms of practice, its purpose is to investigate the constitution of normality and the dynamics of habit and routine.

It would be misleading to draw too sharp a distinction between the realm of the spectacular and that of the grindingly ordinary. Even so, I'll start by suggesting that the slicing of academic debate reveals a contemporary preoccupation with the explicit, the visible and the dramatic. Analyses of the tangible threats and traumas of risk society and of catastrophes, controversies and high-profile developments in science, politics and technology all illustrate this trend. Although the gleam of novelty gives issues like biotechnology, genetic modification or the future of e-commerce an immediate allure, closer inspection suggests that even fashionable topics have muddy and sometimes extensive taproots reaching back into long-standing programmes of theoretical concern. Familiar questions of social division and cohesion, consumption and production, agency and structure are rarely far away. Although familiar, these foundational questions are, of course, subject to reinterpretation and revision through and in the light of current concerns. It is easy to see why intellectual resources concentrate around themes that sparkle and spike the interest of research funders, the media, the public and fellow academics. Such focusing is to be expected. But what are the longer-term consequences of grounding ideas about contemporary society in the analysis of its more tangible and explicit characteristics? Might the tendency to pursue novel and fashionable topics not lead to the unwitting elaboration of lopsided conceptual frameworks? Would current lines of theoretical development be any different if they were, by contrast, anchored in the study of ordinary habits and routinized aspects of everyday life?

This is a question that runs throughout the book. Along the way, it takes specific forms. How might we conceptualize *inconspicuous* consumption as opposed to that which is overtly wrapped up with questions of style, status and symbolic signficance? Can existing theories and analyses of things, objects and material cultures be bent and adapted to take account of the intangible, immaterial and invisible services they make possible? What does the co-evolution of technology and practice really mean for you and me and for the way we organize our lives? With what means might we explain the creep of convention and the escalation and standardization of conditions and circumstances that people take for granted? This is not to suggest that the social organization of normality is in some way distinctive, or that the processes involved are not also at play in other domains. Rather, the point is to discover what new theoretical challenges the study of a handful of ordinary practices might generate for a discipline that has, on balance, and perhaps to its cost, drifted from the systematic scrutiny of the mundane.

Of course arrangements that are normal for some strike others as being extremely strange. Though I have no intention of defining the ordinary in any absolute sense, the book engages with sets of practices and expectations that constitute the barely detectable gridlines of everyday life. They form what would commonly be seen as a neutral backdrop against which the dramas of contemporary social interaction are played out. In Goffman's terms (1969), this book is more about the production of the scenery, the lighting and the setting than the action itself. These features are, none the less, actively constituted and reproduced in ways that demand the skilful deployment of rules, resources, technologies and other persons.

Despite inhabiting the shadowy region of the back-stage, the themes with which I deal are themselves subject to sometimes rapid development. In Western societies the sense of changing scenery is both pervasive and elusive.

To give just a few examples, expectations of the indoor environment have shifted substantially in less than a single generation: although some people still wake to patterns of frost on the inside of the window, many more have come to take the comforts of central heating and air-conditioning for granted. In this as in other respects, experiences of cosiness and wellbeing are on the move. To give a second quite specific example, the Saturday night bath, once a standard feature of British family life, has given way to patterns of daily showering, a form predominantly valued for its convenience. The valuing of convenience is itself indicative of further transformation. Any number of devices and solutions are sold in the name of convenience and sold to those who feel themselves to be harried, hurried and harassed. Few can pin down just how and when their habits change but again there is a sense that things were not always so.





These instances point to the significance of middle-range concepts like those of comfort, cleanliness and convenience. Such cross cutting terms encompass a variety of inter-linked conventions and habits and as such offer a vocabulary with which to explore and follow the evolution of routine, and with which to show how new arrangements become normal. One ambition of this book is to investigate unspectacular dimensions of daily life along these lines as a means of better understanding the dynamics of social change.

There are several reasons for concentrating on these three Cs – comfort, cleanliness and convenience – in particular. First, these complexes of practice appear to change in ways that challenge established theories of consumption and technology. Second, despite persistent and extensive variation, there is some evidence to support the view that comfort and cleanliness are subject to distinctive forms of escalation and standardization. Escalation here refers to the ratcheting up of demand, for instance for levels of comfort or for degrees of cleanliness. Standardization implies that the reach of what counts as normal is more and more encompassing. Conventions once confined to particular cultures seem to be extending (and eroding) in ways that suggest convergence in both technology and practice. Global acceptance of the business suit, the waning of the siesta and the expectation of always wearing freshly laundered clothing give an indication of this kind of change. Such trends are neither simple nor inevitable: pockets of habit stick fast, old ways die hard and some are obdurately resistant to change. Even so, there is an arguably new and certainly niggling tension between the production, appropriation and maintenance of standardized and localized interpretations of normal practice.

The prospect of exploring processes of escalation, standardization and resistance is appealing in its own right, but it is of more than academic interest. While the three Cs do not represent the full range of ordinary practice, they do encompass the environmental hot spots of consumption. Around half the energy in the world is used in buildings and much of that is devoted to keeping people comfortable. In the UK, cleaning now accounts for approximately 70 per cent of domestic water usage and demand for hot water is rising. The increasing importance of convenience and of devices designed to ease problems of temporal co-ordination relates, I argue, to the contemporary challenge of scheduling valued aspects of everyday life. As well as engendering the multiplication of energy-consuming but time-saving or time-shifting technologies, this trend has further implications for the definition and delivery of normal and necessary standards and services.

These points are not missed by environmentalists, many of whom are concerned about the proliferation of unsustainable ways of life and the consequences of such for climate change and global warming. Environmentally inspired analyses, usually framed in terms of restraint, excess and individual

choice, tend to focus on the consumption of energy, water and other natural resources, but not on the services and experiences they make possible. By focusing so exclusively on individual action, such enquiries miss the bigger picture, failing to detect cultural and generational shifts of expectation and practice. In response, and in contrast, I take a different tack: starting rather than ending with a discussion of the sociotechnical transformation of *collective* conventions and thereby generating a more thoroughly social understanding of environmentally significant change.

This book is therefore driven by three ambitions. One is to revisit theories of consumption, technology and social change through an analysis of ordinarily invisible practices. A second is to work out how and why conventions of comfort and cleanliness are on the move. The third is to shift the focus of social environmental research and policy so as to comprehend the collective restructuring of expectation and habit. This involves tracking what have become routinized and inconspicuous practices. It means thinking again about the definition and appropriation of *services*, rather than discrete objects, and trying to understand both the convergence and divergence of everyday *practice*. This is not an innocent exercize. In focusing on comfort and cleanliness and on the dynamics of co-evolution and integration, the book offers and illustrates a different way of cutting the cake for environmental policy as for social theory.

While questions of comfort, cleanliness and convenience have yet to receive sustained sociological attention, the notion of investigating the escalation and standardization of consumption or the reproduction of habit is by no means novel. As a result, there are many resources on which to draw. The remainder of this chapter isolates relevant ingredients from the sociology of environment, of consumption and of technology.

## Natural Resources and Consumer Choices

For all the effort invested in analysing consumer culture and consumer society, and despite the view that these concepts are 'central to unlocking some of the mysteries of contemporary societies' (Shove and Warde 2001: 231), interest in energy and water consumption has been largely confined to the environmental field. One somewhat paradoxical consequence is that consumer practices relating to routine forms of domestic reproduction, to washing, drying, cleaning, heating, lighting, cooling and so on, are as likely to have been studied by environmentalists or by feminists as by those for whom consumption is core business.

This has led to a particular bunching of priorities. It comes as no surprise to discover that *environmentally* inspired programmes are guided by a prior





interest not in consumption per se, but in what that means for carbon emissions, pollution, waste and the depletion of finite resources. Building on this initial framing of the problem, dominant questions have concerned the ecological limits to growth, the specification of environmental 'carrying capacities' and the figuring out of where the end of the road really lies. In all of this, escalating consumption and economic growth are generally taken to be interdependent, one leading to and being a precondition for the other (Weyant and Yanigisawa 1998; Laitner, De Canio and Peters 2000). Continual monitoring of the resource and energy intensities of world economies, further fuelled by economic modelling and forecasts of future trends, tends to produce a somewhat depressing picture. One can sometimes glimpse the steadying impact of improvements in technological or market efficiency (Romm and Rosenfeld 2000), but projections of future per capita demand for energy generally point ever upwards.

Although purportedly indicating patterns of consumption, such images are uninformative with respect to the *specifics* of how peoples' expectations and practices change. As indicated above, increasing demand is a foregone conclusion and in this style of economic/environmental analysis, people, in so far as they feature at all, do so as the aggregate consumers of socially anonymous resources.

Even so, plotting future trends in the countries of the North and the South is a contentious matter and one that highlights the political significance of consumption in general and of environmentally significant consumption in particular. In response, technically minded policy analysts have taken advantage of the apparent neutrality of economic and environmental modelling. Some have sought to demonstrate the long-term sustainability of a world in which demand is 'allowed' to increase to levels currently obtaining in western Europe, providing the USA scales back to that level too. Other assessments identify the need to reduce the material intensity of consumption and production by factors of four, or ten or twenty. Such assessments have prompted further, similarly intense, discussion about how the dials of demand might be retuned through policy initiatives or technological fixes (Giovannini and Baranzini 1998; von Weizsäcker, Lovins and Lovins 1997). Exemplifying this approach, Schmidt-Bleek, founder of the 'Factor 10 institute' claims that 'Within one generation, nations can achieve a ten-fold increase in the efficiency with which they use energy, resources, and other materials', and advises industry and government on how this might be done (Factor 10 Club 1997). Exercises of this kind are immensely influential not, or not only, for the results they produce but for the questions they cast and the shadows these throw.

By definition, forecasts and projections make assumptions about the extent and character of future consumption. Also by definition, proposed policy

responses imply that projected trends can be changed and modified. In this they carry with them an understanding of basic 'needs' and variable 'wants' and of standards of living that might be compatible with a sustainable future. But which elements of anticipated demand should be taken as read, which are negotiable, by whom, and on what basis? Like it or not, environmental models are shot through with questions of inequality, social justice, entitlements, responsibilities for future generations and visions of the good society. Yet the purpose and process of their production tends to disguise this point with the result that the social conditions and circumstances in which needs are defined slips from view. One ironic consequence is that much – although certainly not all – environmental research, policy and academic comment sidesteps explicit engagement with its own social and political assumptions. Despite and in fact precisely because of its *environmental* focus, fundamental issues about the specification of demand fall (or are pushed) beyond the bounds of normal policy debate.

Given the importance of energy and other natural resources, research and policy has focused on their consumption rather than on consumption in general. Accounting tools used to assess the 'ecological footprints' of regions or commodities, to calculate the weight of the 'ecological rucksack' attached to specific lifestyles, or, less commonly, to evaluate the impact of entire ways of life celebrate this resource-based focus (Wackernagel and Rees 1995) as do technical exercizes in modelling household 'metabolism' (Noorman and Uiterkamp 1998). Having distinguished between the resources currently used and those potentially required to deliver the same standard of living, it is possible – and politically sensible – to promote 'green' ways of life not substantially different from those we have come to expect, but less damaging in how they are achieved and sustained. Initiatives designed to increase the efficiency with which existing services are provided take no account of how standards of living have been established or what they are.

While environmental impact can be added to the list of evils associated with consumer culture, it is just as easily incorporated into that culture itself. A common strategy, and one that again ducks the question of how needs are defined in modern societies, is to commodify the environment. This takes many forms ranging from trade in carbon emissions permits to the labelling of green products. By imbuing ordinary things and practices with environmental significance, policy makers encourage consumers to make 'the environment' their preferred brand as part of a broader strategy of ecologically modernizing their lives (Spaargaren 1997). Adopting similar methods but for commercial purposes, manufacturers use green credentials in pursuit of higher sales, product differentiation and more precise niche marketing.





In keeping with this approach, research into the relationship between environmental commitments, beliefs, actions and lifestyles sustains and reinforces a model of isolated individuals whose variously green identities are expressed through a precisely calibrated and increasingly extensive palate of green consumer choice (Hinchliffe 1996; Stern *et al.* 1997; Moisander 2000; Hobson 2001; Zavestoski 2001). Grounded in the belief that better information will allow consumers to make 'better' decisions, labelling and standard-setting represent important planks of national and international policy. Such initiatives have the dual purpose of stimulating interest in the environment and of offering a ready-made channel for its expression through the purchase of commodities like high-efficiency freezers, ecological washing powder, green electricity and more. Caught within this paradigm, studies showing that generalized environmental concerns do not simply translate into practice have inspired further programmes of research designed to spot intervening factors that complicate and confound the translation of belief into action.

One might of course wonder, as Don Slater does, 'whether "consumer choice" is the best way for a society to go about defining, let alone filling, its basic needs' (Slater 1997: 136), or for that matter responding to its environmental crises. After all, a green freezer is still a freezer and although advocates of voluntary simplicity might worry about whether to use one at all, studies like those reported in *Green Households* (Noorman and Uiterkamp 1998) take the preservation of current practice – including reliance on frozen food – pretty much for granted. Schor (1999) has called for a debate about the 'quality of life and the quantity of stuff' but for the most part environmental policy makers have been unwilling to consider the social construction of routinized needs and wants. They have instead confined themselves to the limited but still demanding task of jogging consumers into thinking about the efficiency with which their needs are met. In keeping with this approach, the OECD has produced a number of reports on sustainable consumption detailing strategies policy makers might adopt in guiding consumer choice in more sustainable directions. As the title of one such study – 'Information and Consumer Decision-Making for Sustainable Consumption' – indicates, the aim is to help consumers 'see' the environment in what they do, and see if there are other more efficient ways of achieving the same result. All else has the negative connotation of 'cutting back' and smacks of government restraint on citizen-consumers' choice.

Sharing these policy ambitions, but offering a solid critique of the simplistic, individualistic and 'decisionistic' paradigms that dominate, Gert Spaargaren recognizes that many environmentally relevant 'choices' do not appear as such. Buried in the realm of routine and what Giddens (1984) terms practical consciousness, Spaargaren notes that water consumption only penetrates the plane of discursive consciousness when it comes out brown, or in the wrong place,

or when the utility bill arrives. For Spaargaren, an environmentalist himself, such moments of deroutinization are critical because they enable people to examine and assess their habits from a green perspective (Spaargaren 1997: 28). Borrowing Giddens's ideas regarding the duality of agency and structure, Spaargaren makes the point that citizen-consumers are not just shoppers. They are also implicated in the production and reproduction of structural constraints and opportunities such as those afforded by public utilities and household infrastructures. Though initiated through cycles of deroutinization and reroutinization, he argues that the ecological modernization of domestic practice is neither 'actor driven or system-imposed' but is both at the same time. Convinced that a process of environmentally inspired modernization *is* underway, Spaargaren concludes that consumers' commitments 'will profoundly affect and alter the organization of domestic consumption as well as the interrelations between households and socio-material-collective systems' (Spaargaren 1997: 30). But will such a move also redefine what people expect by way of comfort, cleanliness and convenience? Not necessarily, and not unless environmental considerations prove weighty enough to displace contemporary understandings of what everyday life should be like.

Taking an altogether more robust approach to this subject, Michael Redclift (1996) situates his analysis of environment and consumption in the context of an inter-dependent global economy organized around specific packages of commitment and belief. In his terms, the upward paths of predicted energy demand reflect, and are a consequence of, the social values attached to the production and consumption of energy and resource intensive commodities (Redclift 1996: 40).

Redclift suggests that in the normal run of environmental discourse, and especially the discourse of environmental management, goals like those of achieving a higher standard of living are accorded almost existential status. More than that, 'the underlying social commitments which drive our consumption, and contribute to waste, are afforded value by being naturalised' (Redclift 1996: 146). Again the point is that the very process of environmental analysis, debate and modelling, including that concerned with green consumption and ecological modernization, contributes to – and takes for granted – ways of life and suites of values that are at the heart of the environmental problem itself. In concluding that 'we will not be able to undo, through environmental management, what we have done through naturalising our consumption' (Redclift 1996: 148), Redclift turns back to the dynamics of convention, commitment and consumption.

This is an unusual and radical move. As indicated above, discussions of environmentally significant consumption typically focus on resources rather





than on the services these make possible, they highlight the promotion of environmental awareness and concentrate on excess and restraint at the level of individual consumer (or citizen-consumer) choice. This politically explicable emphasis overshadows prior questions about the framing and formulation of 'normal' practice. Just as important, it misses the point that much consumption is customary, governed by collective norms and undertaken in a world of things and sociotechnical systems that have stabilizing effects on routines and habits. As indicated above, more sophisticated accounts do take note of how choices are structured, but in concentrating on resources and efficiencies rather than expectations and conventions, environmentalists have largely failed to notice or really engage with critical developments in ordinary consumption.

The missing agenda identified by Redclift brings a trail of questions in its wake: how *do* practices, expectations and ways of life become naturalized? What energizes processes of escalation, standardization, differentiation and development? In addition, how do models, ideologies, cultures and ways of life spill over from one country to another: what are the long-term environmental implications of Westernization, modernization and Americanization, and how are these tendencies modified and mediated by local traditions, habits, meanings and modes of appropriation?

To address these questions head on it is necessary to abandon the resource-based focus of environmental enquiry. As Wilhite and Lutzenhiser (1998) have argued, people do not consume energy. In real life they consume 'cultural energy services', in other words, culturally meaningful services that happen to depend on a supply of gas, oil, or electricity. Amongst others, these include services like those of comfort and cleanliness. It is therefore necessary to consider not just the more-or-less green means by which expectations are met, but what those expectations actually are. From this point of view, studies of eco-villagers or investigations into the beliefs and actions of self-confessed environmentalists represent something of a distraction. What counts is the big, and in some cases, global swing of ordinary, routinized and taken-for-granted practice. This implies an up ending of the social environmental research agenda, as conventionally formulated. Only by setting 'the environment' aside as the main focus of attention will it be possible to follow and analyse processes underpinning the normalization of consumption and the escalation of demand.

This is the strategy I propose to take. As already observed, questions about how new practices become normal touch upon familiar themes within the sociology and anthropology of consumption and technology and there is much to work with. In the next section I highlight a selection of potentially useful ideas regarding the escalation of consumption and the direction of socio-technical change.

## Cycles of Consumption and Escalators of Demand

In real life, escalators do not run backwards. Neither do the escalators of demand in economic theory. As Inge Røpke, observes, the nature of the market economy is such as to generate perpetual technological change (Røpke 2001). According to Røpke, firms constantly search for ways of making existing products more cheaply and renewing what they produce in order to generate new demand and keep ahead of their competition. The consumer side of this equation is similarly escalatory. Caught up in what Juliet Schor (1992) refers to as the work-spend cycle, people seem to be drawn deeper and deeper into the maw of a market society, selling their labour and producing things they do not want in order to earn money to buy those they desire (Slater 1997: 26). Individual situations differ but in general the proposition is that the more people spend, the more they need to work and the more they work, the more other people need to spend. In short, this family of ideas conceptualizes consumers' changing needs and wants and hence the changing constitution of normal expectation in terms of the productive forces and requirements of capitalist industrial economies.

Mainstream economists tend to assume that needs are exogenous and that they exist independent of the market. Others argue that consumers' aspirations and desires are made, mediated and created by and through the market itself. Either way, the shared position is that the meeting and/or reproduction of consumers' needs constitutes an engine of change that underpins and explains the ratcheting of demand. In all of this, it is strangely easy to argue about the characteristics of demand without taking much notice of exactly what is consumed, how that changes or what these changes mean for the practices and ways of life of those involved. There is a certainty that development will take place and that it will do so in a manner consistent with the requirements of modern capitalist society but there is no strong story here about the substance of desire, whether constructed or predetermined, or about direction of techno-economic change. To learn more about the detail of production and consumption, we would do well to turn to the literature on innovation, a literature that is centrally concerned with novelty and change, with how products are developed and how they become normal.

Analyses of innovation generally focus on the generation of new goods and services or on methods for standardizing and improving production processes. Concentrating on the former situation, E. M. Rogers' (1983) classic work on innovation identifies a standard sequence through which new products and practices are embedded in society. The sequence is one in which the actions of 'early adopters', that is people with a psychological propensity for risk taking are, in due course, copied by others of a more cautious nature. The





implied engine of change on the consumer side of the equation relates to risk and novelty (not to capital accumulation, as it does for producers) but the process is again represented as one of inevitable escalation. As a story of how innovation works, this much-criticized account supposes that the link between new technologies and new forms of demand has to do with the psychological fabric of society and the relation between different types of risk taking. The further assumption is that new technologies *will* diffuse through society and that the process of changing consumer expectation is simply a matter of time.

In so far as the production of new goods and services contributes to the escalation of demand, we might expect the centrifugal pull of Schor's work-spend cycle to be somehow linked to the rate and character of innovation. This would suggest that the social embedding of novelty, or in Rogers' terms, the diffusion of innovation, is not simply, or perhaps not at all, to do with psychological propensities for risk taking, but with an essentially more complex relation between production and consumption.

The idea that consumers' pursuit of novelty goes hand in hand with producers' requirement for innovation constitutes one popular explanation for the escalation of demand. There are, however, other more sociological accounts of the dynamics at stake. In reviewing some of this literature, Shove and Warde (2002) isolate a number of mechanisms held to support escalating levels of consumption. These include social comparison (in which consumption contributes to the maintenance and reproduction of social boundaries and distinctions); the creation of self identity (in which the acquisition of goods and services is central to personal psychological wellbeing); mental stimulation and novelty (these desires helping to sustain constant pursuit of new products and experiences); matching or the Diderot effect (in which replacement of one element or item makes others look shabby and so sets off a further round of acquisition); and specialization (associated with the subdivision and demarcation of previously unified activities or singular products). Individually and in combination such mechanisms may well increase the level and volume of consumption in society. But as explanations of change, they focus on the acquisition of conspicuous and tangible objects rather than on practicalities of use.

Although one might analyse the first introduction of appliances like washing machines or freezers in terms of social comparison, novelty, or specialization, this is not an appropriate vocabulary with which to conceptualize the consumption of gas, water or electricity. In practice, few of the mechanisms identified above cope very well with the transformation of invisible systems, with infrastructural developments or with the 'escalation' of practice and service as opposed to the selection of discrete commodities. The limitation here is that goods and objects are analysed in isolation and without noticing the pre- and co-requisite systems and technologies on which they depend, or the

reconfiguration of ideas, actions and habits associated with their use and appropriation.

To understand how routinized ways of life are situated and inscribed in tools, devices and material objects, it is necessary to go beyond these theories of consumption and break into territory more commonly occupied by sociologists of science and technology. This also makes sense when considering the *direction* as well as the rate of change. While the accounts of escalating demand sketched above offer more or less convincing explanations of increasing consumption, they have less to say about how it is that some routes are taken and not others.

## Trajectories and Transitions

Initially used to explain why economically optimal forms of innovation are not always realized, the concept of path dependency highlights the extent to which existing technologies and practices structure avenues of future development. As defined by Rip and Kemp, 'path dependencies refer to the interrelatedness of artifacts with other artifacts, infrastructure and routine' (Rip and Kemp 1998: 354). The classic example in this field is the persistence of the QWERTY keyboard (David 1985), a deliberately inefficient format but one that has become established in a manner now difficult to dislodge. Alignments between actors, along with sunk costs of various forms led, in this case, to a hardening of the 'path' such that it has become increasingly difficult to break away from the QWERTY arrangement.

Patterns of path dependency have consequences for change and stability at various levels: between firms, within technological communities, amongst users and across the plane of social meaning, convention and expectation. In making reversals and dramatic changes of direction difficult such configurations have the dual effect of cutting off otherwise plausible trajectories of sociotechnical development while paving the way for others. For present purposes, theories of path dependency and irreversibility have two advantages. First, they build on the idea that technologies and practices inter-relate. Second, they provide a way of conceptualizing and perhaps explaining the direction in which systems, technologies and practices evolve.

The concept of a 'sociotechnical regime' consolidates the notion that irreversibilities and path dependencies occur at different levels. The terminology of regime or landscape is generally used to characterize the rules, paradigms and dominant technologies framing current action and informing beliefs about what is and is not possible in the future. Hughes' (1983) *Networks of Power*, is a classic and compelling narrative of regime construction, detailing the





development of the electricity system *and* the social relations and expectations that go with it. Embedded in institutions and infrastructures, regimes enable and constrain what goes on in the lower planes of Rip and Kemp's (1998) multi-level model of sociotechnical change. In this analysis, discussed more fully in Chapter 3, macro, meso and micro levels of sociotechnical change have their own dynamics but are none the less linked together, each being of consequence for the other.

The literature on regimes tends to emphasize technological interdependence and the part material systems and arrangements play in holding social practices together. Dealing more with the symbolism than the hardware of consumption, Douglas and Isherwood (1996) advance the view that social order is defined and reproduced through the rituals of everyday life; rituals that in turn confer meaning on goods, artifacts and even infrastructures. They claim, for instance, that goods are needed 'to make visible and stable the categories of culture' (Douglas and Isherwood 1996: 38), also arguing that relations of consumption are significant not simply because they are implicated in the management of boundaries between social groups or because they function as crucial media of communication but because 'they constitute the very system itself' (Douglas and Isherwood 1996: 49). This is a curiously dematerialized interpretation in the sense that it underplays the potentially constitutive role of things and sociotechnical systems. Even so, Douglas and Isherwood's insistence that practices have meaning alongside each other and as part of a total ensemble has much in common with the representation of regimes outlined above.

Such explanations make some sense of how conventions, technologies and social relations hang together but how do they change? For Douglas, sources of change are typically external to the society in question. Interaction *across* societal boundaries, of one form or another, is consequently critical both to the maintenance and to the redefinition of practice. Others elaborate on the conditions and contexts of change *within* societies.

Schot, Hoogma and Elzen (1994) suggest that new technologies and practices develop within safe havens or 'niches' protected from the demands and rigours of regular market conditions (Kemp, Schot and Hoogma 1998). As they explain, the boundaries of the sheltered 'nursery' extend as innovations are progressively embedded in society, as knowledge develops, as users become enrolled and as new technological and market conditions are formed. The temporal and spatial characteristics of this process differ from case to case, depending on the properties and characteristics of the surrounding sociotechnical landscape. In practice, there is no guarantee of success. Seedling innovations die all the time, in the nursery, in between the nursery and the wider world and in the wider world itself. The character and duration of the innovation journey is, in addition, likely to depend on the extent and nature

of the difference between present social relations and those implied by prospective sociotechnical configurations. Developing this point, Abernathy and Clark (1985) distinguish between incremental and architectural innovation, reserving the latter term to describe situations in which the very architecture or framework of skills, competencies and expectations shared and required by users, consumers and producers is transformed. Defined in this way, architectural innovations represent a seismic shift in technology and practice powerful enough to change the landscape of opportunity and generate widespread obsolescence. The question of whether consumer-producer relations are stabilized or disrupted and reformulated by innovation focuses attention on the relationship *between* technological development, the market and society. This move is interesting for it implies that both the rate *and* direction with which demand evolves are the result of a double act involving innovative technologies and reconfigured markets. These contextualized analyses of sociotechnical change have two especially relevant features: they recognize the constant evolution of technology and practice, and they address the transformation of seemingly stable infrastructures and conventions.

Adding these fragments together, it would seem important to ground otherwise abstract sociological and economic propositions about the mechanisms of increasing consumer demand and relate them to specific contexts of sociotechnical change and innovation. After all, there has to be some direction to escalatory trends like those of work-spend or the pursuit of everlasting novelty. Sociologists of technology argue that at least some of this has to do with what has gone before and what scope this leaves for radical or incremental innovation in the future. Meanwhile, authors like Douglas and Isherwood (1996) focus on the restoration of social order, attributing change to external disturbance or to tension within the social system. Whatever their other qualities, these rather generalized accounts tell us little about how peoples' practices and conventions change from one day to the next. Studies of the relation between specific technologies and their users bring us closer to the detail of such transition.

## Reconfiguring Practice

Domestic consumption of energy and water depends on the introduction of new consumer durables, on how such devices and resources are used and on the services they provide. For the most part, the sociology of consumption has concentrated on moments of acquisition rather than the consequent adjustment of what people do. So how does the stuff and substance of consumption relate to the ordering of everyday life and to concepts of normal and proper practice? Again a mixing of traditions is fruitful.





Less concerned with the engines of macro-economic change than with the co-evolution of the 'hybrid' objects with which we surround ourselves, authors like Akrich (1992), Latour (1992) and Bijker (1997) have sought to understand the mutual constitution of technologies and their consumers and users. The resulting repertoire of concepts promises to be of value in thinking about the escalation and standardization of comfort and cleanliness. The suggestion that technical objects 'define a framework of action together with the actors and the space in which they are supposed to act' (Akrich 1992: 208), has given rise to further discussion of processes like those of 'inscription', in which designers embed visions of future users in the things they make, and of 'de-scription' in which users react to those inscriptions. Work in this tradition prompts us to enquire how taken-for-granted but environmentally problematic practices are sustained and given form and shape by household infrastructures and familiar domestic technologies.

In an article explicitly concerned with sustainable design, Jelsma (1999) considers the forms of 'green' behaviour built into things like dishwashers, low flow showerheads and water efficient toilet cisterns. He asks how such devices script and thereby enforce an environmental morality upon their unsuspecting users. Can environmental consumption be 'hardwired' into the home? Answers are complicated not least because some technological scripts are more 'open' or 'resistable' than others, because scripts are, in any event, de-scribed in context, and because stories of failure – in which technologies are used in ways other than those intended – abound. For now, the notion of environmental scripting is useful in that it shows how technologies *might* stabilize or generate new practices. The idea of scripting does not, in itself, reveal much about the extent or direction of change or about how specific technologies and practices relate to more encompassing complexes of meaning, expectation and understanding. In other words, there is still something of a gap between detailed analyses of individual devices and efforts to understand the co-evolution of inter-dependent suites or complexes of technology and convention.

In so far as technical systems and devices do configure their users (Woolgar 1991) it is important, and in social-environmental terms, vital, to think about their reach and the scope of their effect. The global diffusion of standardized appliances brings with it the prospect of correspondingly standardized routines and practices. Or at least it would do so if it were not for the fact that technologies are rarely appropriated wholesale, or in pure form. Silverstone, Hirsch and Morley (1992) describe the process of appropriation as an active exercise in 'domestication'. As they explain, the politics of technology has as much to do with the locally specific dynamics of its incorporation, customization and conversion as with the conditions of design and production. Even so, and perhaps especially with regard to comfort and cleanliness, it is relevant to take

note of global patterns of import and export: of where systems and ideas originate, of what messages they carry with them and of how these are constructed and reconstructed through local processes of appropriation. In other words, there is a geography of sociotechnical change to take account of too.

As well as scripting their users' actions, devices like washing machines and freezers inhabit a world of material culture: a world in which they, and the practices they engender, act as carriers and generators of meaning (Meintjes 2001). It is possible, and in fact quite usual, to consider the 'social life of things' (Appadurai 1986) and the symbolic aspects of their design, acquisition and use without reference to the sociotechnical scripting described above. But in thinking about how ordinary practices change, it is important to notice both aspects and to consider the relation between the two.

The reconfiguration of meaning is evidently important when the transformation of practice is not strongly related to technological development. Somewhat different concepts are therefore required to make sense of situations in which already familiar tools and infrastructures are put to different use or in which the social significance of practice is redefined. During the course of its long career, the bath has for instance featured as a symbol of social status, an instrument in the war against germs and a site of luxuriating relaxation. The material culture of the bathroom arguably represents a fluid but none the less concrete expression of societal value systems. Just as the meaning of the artifact has been rewritten over time, so has the practice and 'purpose' of bathing. Rationales and legitimizing discourses move in ways that are often difficult to follow and that frequently invoke complicated chains of scientific, moral and social judgement. Yet these shifting contexts of social and cultural positioning are of immediate consequence for what people do and for how they understand and make sense of their actions. In capturing these aspects of changing practice it will be necessary to borrow ideas and approaches from cultural studies, as well as from history and anthropology.

Having identified some of the theoretical ingredients with which the book works I now explain how these materials are deployed and how the chapters are organized.

## Method and Approach

At one level, this book is about the reconfiguration of comfort, cleanliness and convenience. It looks at how expectations and practices change, at what rate, in what direction, and with what consequence for the consumption of environmentally critical resources like energy and water. It is not difficult to identify candidate explanations: the restless needs of capitalism; the co-evolution of





sociotechnical systems; the reproduction of social orders and identities; the pursuit of novelty, the rejigging of symbolic structures – all these constitute plausible mechanisms. But not all are relevant for an analysis of routine and practice as opposed to invention, innovation and acquisition, and not all apply in equal measure, or all at once.

Despite being drawn from a variety of sub-disciplinary fields, the ideas outlined above none the less point in a certain direction. Theories of consumer demand have relatively little to say about the course and character of innovation. Concentrating, often implicitly, on demand for things or the meaning of objects, such analyses rarely attend to the uses and practices these goods afford and make possible. Picking up some of these threads, the sociology of technology has much to offer when thinking about pathways of change and the relation between human and non-human actors. However, this literature has been split between the study of large-scale systems and sometimes tiny devices. As a result, much remains to be said about the middle-range dynamics of sociotechnical change and the respecification not just of practice and action, but of more encompassing notions of symbolic order, propriety and service. The book takes up this challenge, linking theories of consumption, technology and practice, and doing so in a way that seeks to capture changes in the reach and scope of what people take for granted.

The environmental sub-plot offers a practical point of entry to what remains an ambitious theoretical enterprise. The decision to concentrate on aspects of everyday life that are moving in increasingly resource intensive directions limits the range of practices on which I might focus. I could have considered evolving patterns of mobility, food provisioning or waste management – all of which would have fitted this bill. But I had other conditions. I wanted to demonstrate the value of thinking about environment and consumption in terms of the collective redefinition of convention and need. I was therefore keen to select examples that, despite being of enormous environmental significance, do not usually figure in environmental debate. In policy terms, comfort and cleanliness constitute fine examples of non-negotiability, their meaning and importance being quite simply taken for granted. In addition, comfort, cleanliness and in a different sense, convenience are composite and complex achievements – a feature that confounds attempts to analyse them in terms of personal choice and individual commitment. The next step was easy. Sticking to the principle of following practices that are changing fast and doing so in ways that are environmentally problematic, I reduced comfort to a discussion of the indoor climate and air-conditioning, and investigated cleanliness in terms of bathing and laundering.

What follows consists of a somewhat eclectic mixture of historical material and evidence from a range of contemporary sources, from interviews and from

different kinds of market research. I concentrate on Western societies, and especially on the UK and the USA, but I have no intention of surveying the current state of play in any one country, or of detailing potentially important differences of practice and expectation within the societies from which my examples are drawn. This is because I use discussion of the three Cs as a means of developing theories of social and technical transformation and in the process building an argument about the dynamics of changing practice. It is this that explains the structure of the book, the order in which examples are introduced and the uses to which they are put.

Starting with a relatively straightforward story, Chapter 2, 'the science of comfort: constructing normality', reviews the (re)construction of convention, analysing this as a path-dependent process of scientific development, technical embedding and conceptual naturalization. Told in this way, the specification and reproduction of comfort provides a fine illustration of the standardization and globalization of ultimately unsustainable expectation. Although it offers a plausible and in many ways predictable account of corporate and technical achievement in making as well as meeting consumer need, this analysis stops short on a number of counts. As a provider-dominated, technologically focused narrative it says little about what the scientific specification of comfort means for everyday life, for what people do or for the collective practices in which they engage.

Chapter 3, 'The co-evolution of comfort: interdependence and innovation', takes hold of these issues through a detailed discussion of the concept of co-evolution. The notion that technologies and practices co-evolve makes much intuitive sense, but exactly what is it that co-evolves with what? What is it that energizes co-evolutionary processes and what gives them direction? How do theories that underscore the co- aspect (that highlight various forms of inter-dependency) relate to those preoccupied with evolution and the explanation of novelty, change and innovation? In detailing the multiple dimensions of co-evolution this chapter has the further ambition of revealing and exploiting commonalities between theories of consumption and innovation. The result is a new menu of questions about how constellations of technology and practice evolve. Subsequent chapters elaborate on different aspects of this programme.

Chapter 4, 'Regimes of comfort: systems in transition', reviews arguments about the dynamics of meso- and macro-level change as represented in 'transition theory'. By relating this work, largely developed within the field of science and technology studies, to debate about the emergence of increasingly global patterns of consumption, this chapter considers the circulation and appropriation of products, practices and taken-for-granted arrangements *between* as well as within societies. Designed to illustrate and detail mechanisms of regime level change, this chapter looks at how conventions converge around the world.





Although the case of comfort is used to develop different strands of thought, Chapters 2 to 4 exploit the fact that in this arena, and in environmental terms, the introduction and diffusion of new techniques and technologies is of defining importance. But how do regimes of normal and ordinary practice evolve in contexts that are not so obviously subject to waves of technological development? The next three chapters work with examples relating to cleanliness, using these to explore alternative, but not necessarily incompatible, ways of conceptualizing change.

Chapter 5, 'Introducing cleanliness: morality, technology and practice' sets the scene by enlarging the discussion to take account of the moral and symbolic significance of practice. The cleanliness-related chapters (5 to 9) emphasize the positioning and repositioning of routine with reference to systems of social order and propriety, cognitive and classificatory systems and systems of meaning. In this they extend the representation of regimes developed in Chapter 4, moving the argument on by paying closer attention to what holds practices together and to how expectations and conventions arise and disappear.

Chapter 6, 'Behind the bathroom door: revolving rationales', analyses a selection of contemporary and historical accounts of personal bathing and showering. While the bathroom is itself a site of innovation, what counts – at least for energy and water consumption – is not so much the development of new technology as how already established devices like the bath and the shower are actually used. This chapter develops the proposition that culturally and historically specific rationales act as guides to practical action and as justifications of it. In looking at what these rationales are and how they fit together this chapter concentrates on the positioning of private practice within and with respect to generic societal concerns.

Chapter 7, 'Laundering: a system of systems', returns to issues of regime formation first raised in Chapter 3 but complicated by the intervening discussion of rationale, order and propriety. The problem is to understand how multiple sociotechnical systems intersect and what this intersection means for emergent understandings of 'service'. In trying to make sense of how laundry practices relate to stocks and types of fabric, to technologies of washing, drying and ironing, to soaps and detergents and to divisions and definitions of labour, this chapter describes different but inter-dependent avenues of sociotechincal change. In emphasizing the relation between co-existing 'systems' it offers another perspective on the definition and reproduction of cleanliness.

Chapter 8, 'Laundry habits: integrating practices' stays with the laundry in order to show how the intersecting systems of Chapter 7 have effect. How have new technologies, fabrics and products affected the routines and priorities of those who do the wash? In following the demise of boiling and the increasing importance of freshness, this chapter is at heart about the

symbolic and practical work involved in maintaining and breaking from tradition.

Summarizing the insights and conclusions of Chapters 6 to 8, Chapter 9, 'System and service' takes stock of the different forms of integration – social, technical, symbolic, moral and practical – considered along the way. Adding bits of argument together, this chapter distinguishes between processes involved in the formation of regimes and in the specification of normal and necessary standards of 'service'. But there is one piece missing. How do the activities, injunctions and obligations discussed this far fit into the stream of everyday life?

Chapter 10, 'Convenience, co-ordination and convention', considers the temporal co-ordination and sequencing of ordinary activities on which the reproduction of conventions and standards depend. This proves to be an important move. It seems that new routines and habits are established and that concepts of normal and necessary service are redefined as people confront and cope with increasing pressures of time. While the idea of convenience legitimizes and sustains specific forms of consumption, convenience devices (things like freezers, washing machines and even showers) have the paradoxical effect of fragmenting activity, inadvertently exacerbating the sense of harriedness and generating demand for yet more convenient solutions. This chapter relates the sociotemporal structuring of society to patterns of sociotechnical development, showing how both keep systems of social and domestic obligation in place and how they compel them to change. In this it provides a set of ideas with which to make sense of comfort and cleanliness and of other routinely invisible dimensions of daily life.

This book appropriates and amalgamates concepts from the sociology of consumption and technology in the cause of better understanding the organizing frameworks of everyday life and how they evolve. The resulting mixture does not generate one all-encompassing theoretical model but it does produce a different way of thinking about the transformation of ordinary routines and habits. As the last chapter, 'Ratchets, pinwheels, cogs and spirals' explains, the effect is to focus attention on the formation of regimes and concepts of service, on how meanings, practices and technologies hold together and how integrative processes themselves influence the rate and direction of change.



# 2

# The Science of Comfort: Constructing Normality

There is no doubting the rate and pace of *indoor* environmental change: over the last hundred years or so, conditions inside have changed significantly. Traditional methods of managing climatic variation, such as the siesta, are in decline. Meanwhile, people in cold climates have become used to wearing lightweight clothing all year round. Increasing dependence on resource-intensive heating and cooling technologies continues to drive energy demand and associated emissions of $CO_2$ and in this there is an ironic but problematic link between the dynamics of indoor climate change (especially cooling and the diffusion of air-conditioning) and those of global warming. Expectations of the indoor environment are evolving and apparently converging around the globe and around a concept of comfort that is immensely demanding to maintain and reproduce. The amount of energy and of artificial cooling required to sustain recognized standards of comfort in the fastest growing cities in the world is truly frightening. Partly because of this, there is increasing recognition that new, more environmentally forgiving specifications may be required. This is tricky because although notions of comfort have changed historically and between societies, engineers and designers are unlikely to flout established technical standards or challenge conditions of comfort that people have come to expect.

This chapter considers the making of comfort as a concept and as a material reality. It looks at how comfort has been defined and how commercial and scientific interests have together led to the specification of standards with which we are now familiar. As represented here, the story is quite straightforward. I argue that despite and partly because of the seemingly innocent goal of meeting peoples' needs, technical research (allied to commercial interest) has contributed to the convergence of indoor environmental conditions and the naturalization of ultimately unsustainable expectations and arrangements. In figuring out why meanings of comfort take the form they do today, I pay particular attention to the assumptions and priorities that have structured the scientific specification of human need. Whose knowledge and interests are