Converging Conventions of Comfort, Cleanliness and Convenience

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1 Introduction

When thinking about environmental aspects of consumption it is tempting to concentrate on the habits and preferences of green consumers and to review the design and development of more efficient, less resource intensive products and technologies. In this paper I outline a different approach, one that goes beyond the individual, beyond the acquisition of specific devices and commodities and beyond the confines of environmental debate.

In developing a more systemic, more thoroughly sociological perspective on everyday life and sustainability, I start with a number of assumptions. First, that domestic consumption and practice are intimately linked in reproducing what people take to be normal and, for them, ordinary ways of life. Second, that much environmentally significant consumption - and in particular, consumption of energy and water - is quite simply invisible. It is bound up with routine and habit and with the use as much as the acquisition of tools, appliances and household infrastructures. Third, changing conventions and expectations have far reaching implications for the resources required to sustain and maintain them. These three points suggest a switching around of the agenda. Instead of seeking more environmentally friendly ways of meeting given levels of service and of 'eco-modernising' society (Spaargaren 1997), longer-term, more penetrating questions have to do with the specification of service itself. How do new conventions become normal, and with what consequence for sustainability?

I explore this question with reference to three domains: those of comfort, cleanliness and convenience. These three C's are especially significant in that their provision is distinctively resource intensive and that each has been subject to recent and radical change. There is more to comfort than space heating and cooling, but these two processes account for the lion's share of domestic energy use in most western societies. Water heating generally comes next. Domestic water consumption has risen in the UK by approximately seventy per cent over the last thirty years (Yorkshire Water 2002) and although not all of that is hot water, bathing, showering and washing clothes account for around a third of household water consumption in the UK and in other European countries (Environment Agency 2001). These are also practices the frequency of which has increased by a factor of five over the last century. There is reason, then, to pay attention to the transformation of these habits and the conventions associated with them. It is harder to pin down the resource implications of convenience. However, it is easy to observe the proliferation of products, arrangements and devices sold in its name, and easy to see that many of them, like reliance on frozen food or on the car, tie consumers into environmentally problematic systems and infrastructures.

Defined in this way, the environmental challenge is at heart one of understanding how meanings and practices of comfort, cleanliness and convenience (or comparable services like the provision of a 'normal' diet or 'normal' forms of mobility) fall into the realm of the taken for granted, and how they change. I consider two aspects of change, one relating to escalation (are conventions of comfort, cleanliness and convenience changing in ways that are increasingly resource intensive?), the other concerning the direction of development - are expectations and practices standardizing and converging around the world, and if so, with what environmental consequence.

In dealing with these questions I toy with different theoretical approaches. For the most part, I make use of ideas developed in the sociology of science and technology, agreeing with Bijker (1997) and Hughes (1983) that social and technical change are different sides of the same coin. I also dip into anthropological literature and into the sociology of consumption in search of concepts with which to capture the dynamics of the three C's and with which to better understand the respecification of complete complexes of practice and habit.   A number of gaps are revealed in the process. There is, for instance, a tendency both in the sociology of technology and of consumption to pay greater attention to the invention and acquisition of new things than to the way such novelties are subsequently deployed in practice. Partly because of this, relatively little has been written about how suites of technologies and products are used together and how they cohere, sociotechnically and symbolically, in shaping the meaning of what it is to be comfortable or to keep oneself and one's clothes appropriately clean. This theme of integration proves to be especially important when thinking about the temporal coordination of everyday life and the self-fulfilling dynamic of the endless pursuit of convenience. But this is to run ahead.

In the next section, I track the history of thermal comfort, using this to illustrate a path dependent process involving a ratcheting of energy intensity from which there is no obvious way back. The third section inspects the domestic laundry from different angles, coming to the conclusion that the reproduction of 'appropriately' cleaned clothing it is best understood in terms of a system of sociotechnical systems that co-evolve together. It is hard to explain the move from weekly bathing to twice daily showering in similar terms for the technologies of the bath and shower are relatively stable. The fourth part therefore concentrates on discourses and rationales and on changing ideas of what bathing is all about. Looking back over the normalization of laundry and bathing I introduce concepts of service, using these to frame analysis of the construction as well as the creep of convention. This leads on to a discussion of temporal coordination within which the commodification and successive redefinition of convenience figures prominently. The final section reviews the processes of standardization, escalation and integration considered along the way and comments on the practical and theoretical implications of meso if not macro sociological efforts to conceptualise consumption and sustainability.

2   Comfort and the ratchet

According to historian John Crowley, interpretations of comfort as 'self conscious satisfaction with the relationship between one's body and its immediate physical environment' (Crowley 2001: 142) date from the seventeenth century. This relation of satisfaction has since been embodied to the extent that when applied to food, furniture, clothing or the indoor climate, the labels of 'comfort' or 'comfortable' now describe an attribute of the item or experience in question. Although people have made themselves comfortable in all sorts of different ways and although meanings of what this involves have varied historically and culturally, new and newly refurbished buildings are typically designed to provide a narrow band of scientifically determined 'comfort conditions'. Since the outdoor climate differs so across seasons and between one country and the next, the world-wide provision and maintenance of comfort, technically defined, turns out to be an immensely resource intensive enterprise.

It also turns out that this is no accident. The science of comfort, that is, the scientific specification of conditions under which most people will report being comfortable most of the time has a very particular history. The capacity to control the indoor climate generated questions that had never arisen before: what is the ideal environment, should the goal be to reproduce the conditions of a spring day in the mountains, or a summer afternoon by the seaside? In addressing these issues, America's fledgling air-conditioning industry turned to laboratory based studies of physiological response in an effort to generate a quantifiable, uniform, universally applicable specification. The resulting definition of an optimal 'comfort zone' was of considerable commercial significance. As Gail Cooper explains: 'When it was shown that no natural climate could consistently deliver perfect comfort conditions, air-conditioning broke free of its geographic limits. When no town could deliver an ideal climate, all towns became potential markets for air-conditioning' (Cooper 1998: 78).

Now enshrined in codes and internationally adopted standards like the American Society of Heating, Refrigeration and Air-conditioning Engineers (ASHRAE) Standard 55, such definitions of comfort continue to govern the details of building design around the world. Since engineers are reluctant to waver from these professional codes, and since 'even in relatively mild climatic zones it is hard to meet the standard's narrow definition of thermal comfort without mechanical systems' (Brager and de Dear 2000: 22), the result is predictable.

It is also reasonable to predict that when much of the built environment provides these narrowly defined conditions, that is what people become used to and that is what they come to think of as comfort. Michael Humphreys writes as follows:

> if a building is set, regularly, at, say, 22º C the occupants will choose their clothing so that they are comfortable at that temperature. If enough buildings are controlled at this temperature, it becomes a norm for that society at that period of its history, and anything different is regarded as 'uncomfortable', even though another generation might have preferred to wear more clothing and have cooler rooms, or to wear less clothing and have warmer rooms (Humphreys 1995: 10).

In addition, and as Gail Cooper describes, homes built for air-conditioning omit features important in naturally ventilated designs. They do not have overhanging eaves, there are no verandas and the layout of the space is not designed for through ventilation. In this entirely practical manner, an air-conditioned way of life is inscribed - hard-wired - into the very fabric of the property. There are obvious social implications. Those who do not have a veranda cannot sit out on it and chat with neighbours in the evening. Likewise, those who work in uniformly climate controlled conditions have no 'need' to pause for a siesta during the heat of the day. The fact that the siesta is in decline, even being officially banned in Mexican government offices in 1999, is thus a compelling illustration of the extent to which whole societies have come to take a year round pattern of a nine-to-five working day, and mechanical cooling, more or less for granted.

As represented here, the standardization of comfort is a narrative of ratchet-like path dependency. The conclusions of scientific research are embedded in codes and standards that are in turn reproduced in the built environment and in peoples' expectations of what it should be like. By redesigning homes and offices for air-conditioning, designers have

condemned homeowners and workers to an air-conditioned way of life from which there appears no way back. Especially not since societies have reorganized around the capacity to manufacture and control conditions inside (whatever the environmental cost).

A ratchet is 'a set of teeth on the edge of a bar or wheel in which a device engages to ensure motion in one direction only' (Allen 1990). The metaphor is easily over stretched for it is hard to specify either the size or the number of teeth involved but in terms of consumption, the ratchet does a good job of graphically representing the impossibility of backward movement and the locking in of technologies and practices as they move along a path dependent trajectory of sociotechnical

With comfort, there are clear commercial interests in constructing and advancing towards a
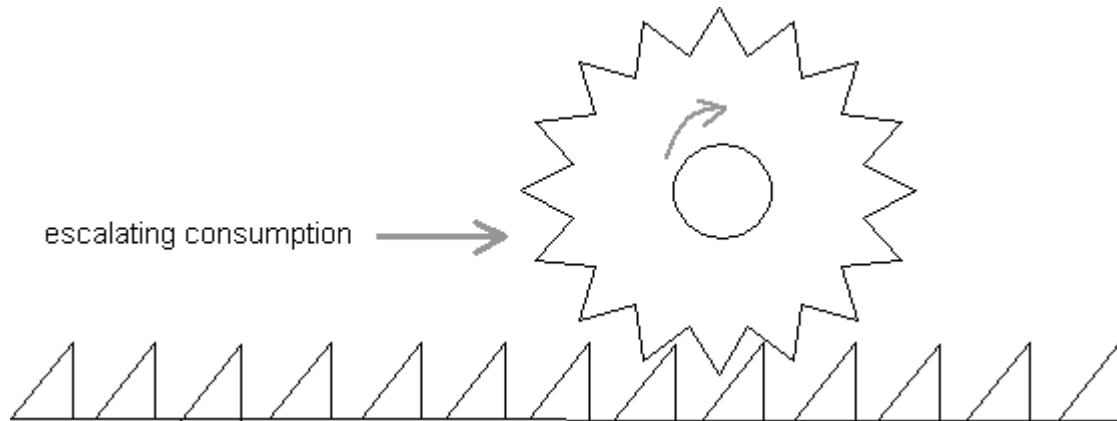
particular vision of 'normality'. There are also interests in keeping that specification on the move: in going further to define optimal conditions for productivity and in maximizing opportunities for refinement, adjustment and control. Meanwhile, other patterns and practices close in. Fashion is a good example. Fanger's equations (Fanger 1970), on which ASHRAE Standard 55 depends, assume that people will be wearing one clo, the clo being a standard unit describing the insulation value of clothing. As it happens, one clo is a business suit. Sure enough, the suit (or its thermal equivalent) has indeed become 'normal' wear all over the world and all year round. Conventions of this kind further restrict the range of actions people can take in making themselves comfortable, so increasing their reliance on the uniform provision of standard conditions at home, at work, in the car, on the train and all points in between. In this way, mechanisms of path dependent ratcheting also foster standardization within and between societies.

3   Laundry as a system of systems

The simplified account of indoor climatic convergence offered above revolves around the scientific specification of a set of conditions and their incorporation within the built environment. There are no equivalents of ASHRAE standards for 'doing the laundry', and not quite the same concentration of commercial power, yet washing habits have changed beyond recognition over the last century. Assembling data from different sources, it seems that American households currently wash an average of 1,332 kg of laundry a year, made up of 392 loads of 3.4 kg (Biermeyer 2000). This is nearly three times the amount done in 1950, when American machines ran an average of 156 times with loads of 3.6 kg (Consumers Union 1950), and nearly twice that washed in the UK today where 274 washing cycles are run with an average 2 kg load (DEFRA 2000). Though the frequency of laundering has increased, water temperatures have plummeted. Boiling, which used to be essential, simply does not happen and even hot washes have gone into decline: over the last thirty years in Britain, the quantity of washing laundered at 90° C or above has dropped from twenty-five to seven per cent (DEFRA 2000).

The domestic washing machine has undoubtedly reconfigured the meaning of clean and repositioned laundering firmly within the home, but I am not sure this indicates an increase in standards (Cowan 1983; Forty 1986). To the extent that domestic laundering has a history, it is one of establishing and constantly revising expectations about degrees of whiteness, the

precision of ironing, the quality of starching, the duration of boiling, the fragrance of freshness, and so forth. The types of clothes people wear, the number they own and the fabrics of which they are made are vitally important in shaping ideas about what needs washing and when. But does the global proliferation and mass consumption of lightweight clothing foster 'higher' or 'lower' standards? Data on the number of washing cycles per year or the weight of the average load tell us something, but what, if anything, do volumes of laundry or rates of energy and water consumption reveal about changing concepts and conventions of cleanliness?

Since there is no obvious yardstick with which to measure the escalation of standards, it makes better sense to think of laundering as a composite service, formed, shaped and given meaning by a complex of 'ingredients': by what there is to wash, what washing involves (who does it, with what tools), and when and why it is done. I'll comment briefly on each of these aspects in order to define the dimensions of the laundry system before saying more about how it co-evolves.

First, why wash clothing at all? Though it does not seem to have been a terribly frequent event, changing the shirt reputedly took the place of refreshing and washing the body in sixteenth century France (Vigarello 1998: 58). Viewed as a kind of sponge, under garments sopped up the outpourings of the body, hence laundering was a substitute and at that time a preferable alternative to bathing. In an almost complete reversal of logic, laundry is today understood as a process of 'clothing care' (Sams 2001), an exercise in decontaminating clothes that have been in contact with the body and of restoring valued attributes of style, feel and image.   Defined in this way, the body is a reliably constant source of pollution hence the view that anything in touch with the skin should be washed after every use.   The external world is a source of judgement and of dirt and other rules apply in defining what can be worn where and when, and in determining the status of things that are clean (having just been washed) but still visibly stained. Market research for Unilever shows smell to be a currently important consideration loosely allied to disinfection, despite the waning of miasma-based theories of disease. Never mind bacteria, dirt and sweat, washing is also, and increasingly, about turning items that are fusty, musty or tired into things that are fresh, scented, fluffy and 'ready' to wear. Smell and texture are relevant but as the following extract indicates, freshness is in essence a state of mind: knowing things are clean, people feel good about wearing them.

> I   So do things feel different as well when you haven't washed them?
>
> R   I feel different -
>
> I   Right.
>
> R   I know I'm clean - I know I've put all clean clothes on - so I'm alright - do you know what I mean? …it wasn't dirty, it wasn't smelly or anything, it just really wanted freshening in my mind

This material suggests that contemporary laundry practices (in the UK) are sustained by a distinctive blend of ideas about sensation, display, disinfection, and deodorization. There is more to say about how these notions come in and out of vogue but in thinking about the laundry system as a whole, it is relevant to take note of what is washed and how, as well as why.

A social history of the laundry basket would mirror developments in the history of textiles and fashion. Both shape the quantity of clothing owned, the stuff of which it is made, and hence what washing involves.   Fine and Leopold (1993) detail the impact of mass produced cotton on the wardrobes of the working class. As well as increasing the number of garments in circulation this move changed the meaning of laundry. Bode notes that: 'as long as linen dominated, typical washing stages included leaching (with an ash leach), brushing or beating; rinsing; blueing and bleaching (through exposure to sunlight in the fields) and treatment with starches before being mangled, ironed and put away' (Bode 2000: 29). Washing cotton was an altogether easier enterprise even without a machine. Telling a similar story but at a later date, Handley (1999), shows how the ready availability of Nylon and other synthetics allowed people to amass extensive stocks of 'machine washable' and increasingly disposable clothing.

Reliance on the washing machine is now such that what it means to 'do the washing' is effective scripted and determined by that appliance. Ninety-two per cent UK households have a washing machine (DEFRA 2000) and some fifty per cent own a tumble dryer (DEFRA 1999). A review of the classificatory structure inscribed in the washing options and programmes on offer shows machine designers to have a powerful grip on the meaning of cleaning.   First defining it in terms of whiteness (not disinfection) and now constructing a new vocabulary of freshness, they have contributed to the progressive disassociation of heat from cleanliness, and the equally progressive valorisation of fragrance. This makes a difference to those who do the wash and to what the practice signifies. Such territory is complicated by questions of responsibility for laundering has long been seen as women's work (Kaufmann 1998) and, as Parr (1999) observes, mechanization has often threatened to compromise important identity-defining practices.

There is, however, more to laundry than setting the machine to run, and still much scope for customising the process as a whole. Recent trends towards washing frequently but at lower temperatures are not simply determined by the technology itself for they have also to be accommodated at the level of habit, practice and meaning. With the doing of washing largely delegated to the machine, accounts of skills and decision-making currently focus on when and why garments are laundered. In eighteenth century Germany, the amount of clothing a person owned was an index of their social standing hence infrequent 'washing cycles were expressions of the social hierarchy' (Bode 2000: 29). This is no longer so for a recent survey - also in Germany - showed that between twenty and forty per cent of the clothes in peoples' wardrobes were not used at all (Albaum 1997). Unlikely to be prompted by the experience of literally running out, the need to wash is more commonly related to the goal of having socially suitable items ready to wear. Household manuals once provided very clear guidance on when things needed washing and on how often to change the sheets. Contemporary conventions are not so readily identifiable yet interviews for Unilever show that what Kaufmann (1998) calls 'injunctions', that is personal senses of obligation, senses of when washing simply has to be done, are powerful forces in structuring routine and practice.

As the above comments indicate, current routines reflect multiple forms of ordering and mutual influence. There are relatively clear relations between the textile, detergent and washing machine industries. Meanwhile, the washing machine has changed what is involved in washing and what 'cleanliness' means to those who do the laundry. The figure below tries to capture these arrangements, each of which are driven by their own dynamic. It locates laundering as an emergent 'service', formed through the co-evolution of the mutually interdependent dimensions identified above.

What are the tools of laundering?
What devices, appliances and chemicals are involved?

How is laundry done?
What steps and stages? What skills and expertise? Who does it?

When to launder?
What are the cycles and flows of washing, wearing and appearance?

Understandings of service – of what it means to do the laundry – emerge as consequence of constituent practices, technologies and conventions

Why launder?
For sensation, display, disinfection, deodorisation or routine.

What is there to launder?
What stocks, fabrics and types of clothing are involved?
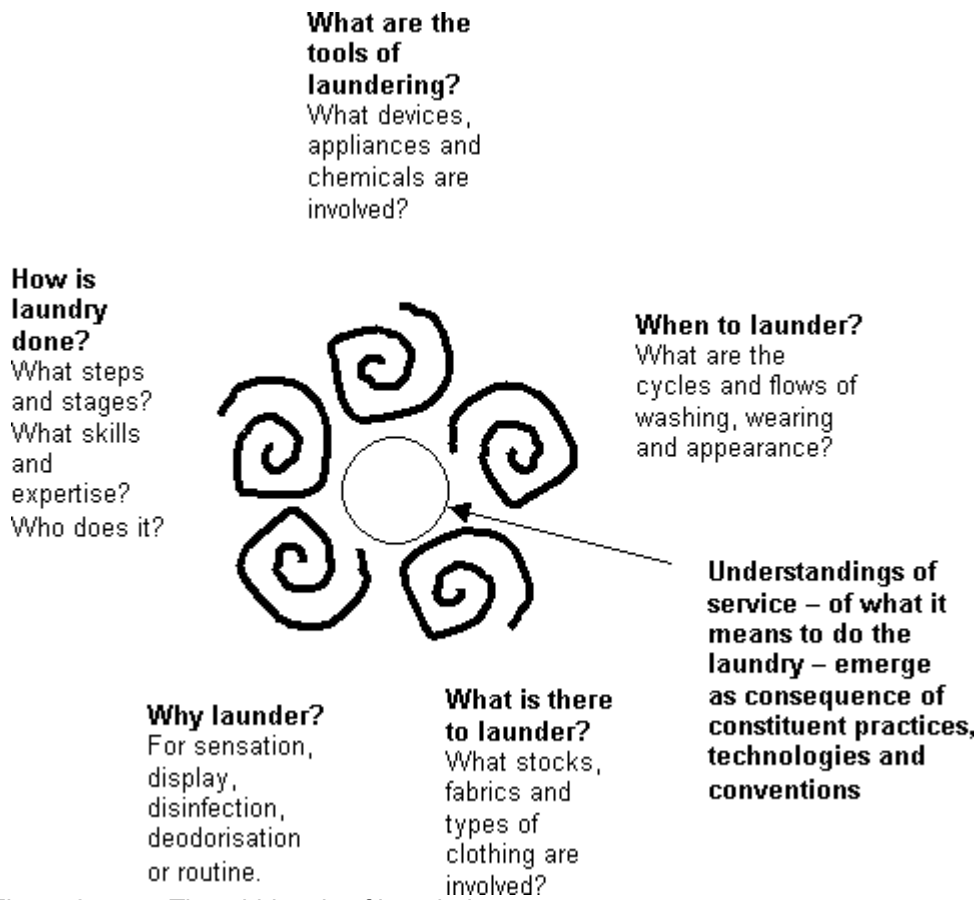
Figure 2   The whirlpools of laundering

This way of viewing laundering has implications for the conceptualization of change. Instead of looking for ratchet-like mechanisms that advance in one direction, this multi-dimensional figure points to the need for a correspondingly complex mechanical metaphor. Despite interdependence between one dimension and another, what it is to launder well has not followed a clear-cut trajectory: the 'service' of laundering has become less resource intensive (as with the loss of boiling) and more demanding (as with the valuing of freshness). Again reaching for engineering imagery, we might therefore represent the laundry as an assembly of cogs (textiles; tools e.g. detergents, washing machines; rationales; skills and expertise) each of which can turn one way or the other, but that together constitute the system as a whole.

Figure 3   Cogs in a system of systems

Stocks of clothing

Washing machine design

Rationales

Skills and expertise
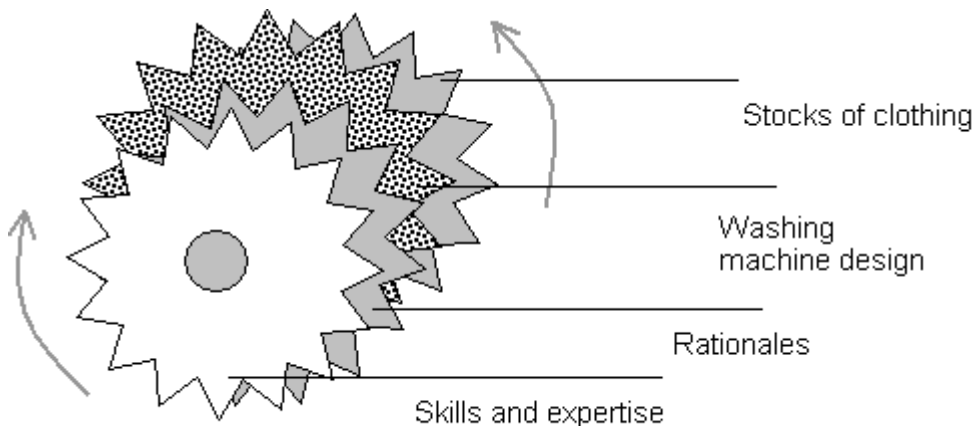
As this sketch indicates, some cogs are likely to be more dominant than others. I have shown the washing machine to be especially significant, in recognition of its Trojan horse like 'ability' to rescript the meaning of clean and restructure the discourses and rationales of laundering. There is some merit in viewing the laundry as a large (socio)technical system, akin to electrification (Hughes 1983) or the telecommunications infrastructure (Fisher 1992). In these cases too, the integration of constituent elements is critical to the operation of the system as a whole. The difference is that there are no obvious 'system builders' of laundry: no key institutions enlisted and enrolled and no well defined stages of sociotechnical development.

Even so, there are identifiable integrative forces holding this system of systems together. At the level of individual experience, respondents offer comprehensive narratives of explanation: theirs might be a unique arrangement but it is 'their way' of doing the laundry and it makes internal sense to them. Cognitive coherence is important and so is systemic sociotechnical ordering. There may not be a single system builder, but washing machines are literally designed for certain kinds of textiles, just as fabrics are made to be washed. There are two points to highlight here. One relates to the importance of how elements fit together - in addition to the escalatory or standardizing qualities of each. The second is an appreciation of the fact that certain cogs or components act as conduits for change. Reliance on the domestic washing machine is, for instance, now so great that anything to emerge from that appliance is by definition, clean. Having positioned itself in this way, the machine has the dual effect of standardizing outcomes, and of standardization the very process of change.

4   Bathing and the pinwheel

At first sight, bathing and laundering are both about the reproduction of cleanliness. In addition, both have been subject to similar forms of five-fold escalation over the last century, the weekly bath giving way to daily or twice daily showering. The codes and standards involved are normative rather than regulatory, and their formation of less immediately obvious commercial relevance than in the two cases discussed above. Markets for new bathrooms, and for the soaps, gels, and foams of personal care are not so obviously interdependent: one part of the system does not depend on the other nor is the bathroom as technologically complex as the laundry. In this arena, the challenge is therefore one of explaining how habits shift in private and behind the bathroom door. Focusing only on the discourses of bathing, that is on explicit and documented reasons why people wash, bathe and shower as they do, the dominant themes of the last hundred and fifty years afford contrasting justifications in terms of social significance (is bathing a marker of elite status or does it signify membership of 'ordinary' society), therapeutic or preventative qualities (is bathing about working with nature or about keeping nature at bay), and positioning as pleasure or duty. Habits do not necessarily correspond to dominant rhetorics but in trying to figure out how routines have changed it is as well to take note of the terms in which they are legitimised. Adopting this strategy, the table below identifies three contrasting interpretations of what seem to be persistently significant considerations.

Table 1   Positioning bathing

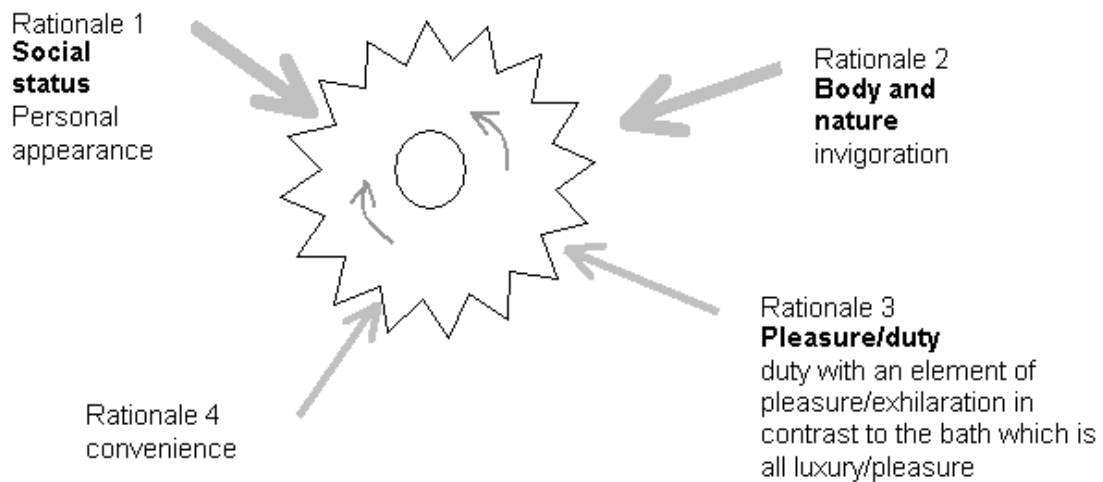| Positioning in terms of:	Hydrotherapy and gentility	Sanitation and social order	Comfort, convenience and commodification
self and society	Bathing signals membership of an elite	Bathing signals membership of civilized society	Bathing is about image and appearance
body and nature	Focus on the curative aspects of immersion in water	Focus on preventative aspects, soap and water required	Focus on curative aspects, especially restoring natural balances

		required	balances
pleasure and duty	Pleasure, ease of use, the spa in the home	Duty to protect own health and that of others	Bathing and showering embody different aspects of pleasure and duty

This scheme suggests that any point in time, routines and habits are (loosely) held in place by a distinctive combination of theories and justificatory concepts. As these change so do the conventions of normality they sustain. Turning this static map into a more dynamic model, the pinwheel figure below shows that conventions of bathing may be redefined in more or less resource intensive directions depending upon the specific configuration of dominant ideas pinning practice in position. More specifically, it describes some of the rationales currently invoked in support of frequent (daily or twice daily) power showering.

Figure 4   Pinning power showering in place

Rationale 1
Social status
Personal appearance

Rationale 2
Body and nature
invigoration

Rationale 3
Pleasure/duty
duty with an element of pleasure/exhilaration in contrast to the bath which is all luxury/pleasure

Rationale 4
convenience

As this picture indicates, contemporary enthusiasm for regular power showering is consistent with an emphasis on image and appearance, on the curative and therapeutic properties of invigoration and on a distinctive blending of pleasure and duty. The figure depicts a kind of locking in of practice, but not one that follows a path dependent trajectory. Different rationales come and go over time, and are more and less definitive in shaping the practices of any one period.

Some of the earliest devices, like the hand pumped English Regency Shower of 1810 (Plumbing and Mechanical 1994), were status items in their own right, but not strongly associated with cleanliness. Lupton and Miller report that by the 1880s, the force and athleticism of the rain bath or 'morning bracer' was believed 'incompatible with female grooming rituals' (Lupton and Miller 1992: 31). Though of little use in forecasting the future, these insights suggest that bathing habits do not simply mirror contemporary theories of hygiene or social order. As with laundering, what matters is how the constituent elements of discourse operate together, and how individuals position their own routines in terms of a range of rationales, these being arguments that justify and at the same time provide a guide for practice. The contemporary blend outlined above, and represented in current advertisements and promotional literature, makes some sense of trends in energy and water consumption and of changing practice behind the bathroom door.

Before moving on, I want to draw out a number of generic issues raised by laundering and bathing, both being examples of 'cleanliness'.

5   Integration and service

It is already apparent that the terminology of cleanliness is misleading in that there is more to laundry and bathing than the removal of dirt. In achieving what they take to be appropriately laundered clothing and showered or bathed bodies, people use key appliances in combination and in particular ways. In understanding change we therefore need to understand how clusters of practice evolve and how they are held together by concepts of service, that is by organizing principles and engrained habits defining what should be done, when and how. The concept of cleanliness may still be useful not as a measure of purity and danger (Douglas 1984), but as an encompassing umbrella, a theme around which ideas and activities gather.

Although sociologists of science and technology have made a good job of exploring the interface between technologies and the practices they script and structure, and of accounting for the appropriation and domestication of such devices, they have yet to really engage with the co-evolution of suites of technology and practice of the kind involved in the reproduction of comfort or cleanliness, broadly defined. Where the relation between systems, conventions and things is at issue, attention has typically focused on the constraining and enabling effects of existing sociotechnical regimes and landscapes on the dynamics of innovation. In these accounts, the purpose is to show how micro level developments shape and are shaped by the meso and macro level contexts within which they are located (Rip and Kemp 1998; Schot, Hoogma and Elzen 1994; Kemp; Rip and Groen 2001). Attention to this vertical dimension is important but it does not tell us much about the 'horizontal' coordination involved in the daily reproduction of the three C's. Taking up this theme, the figure below describes the relation between products, practices and technologies, the means and modes of their integration, and the routines, obligations and senses of normality that emerge as a result.
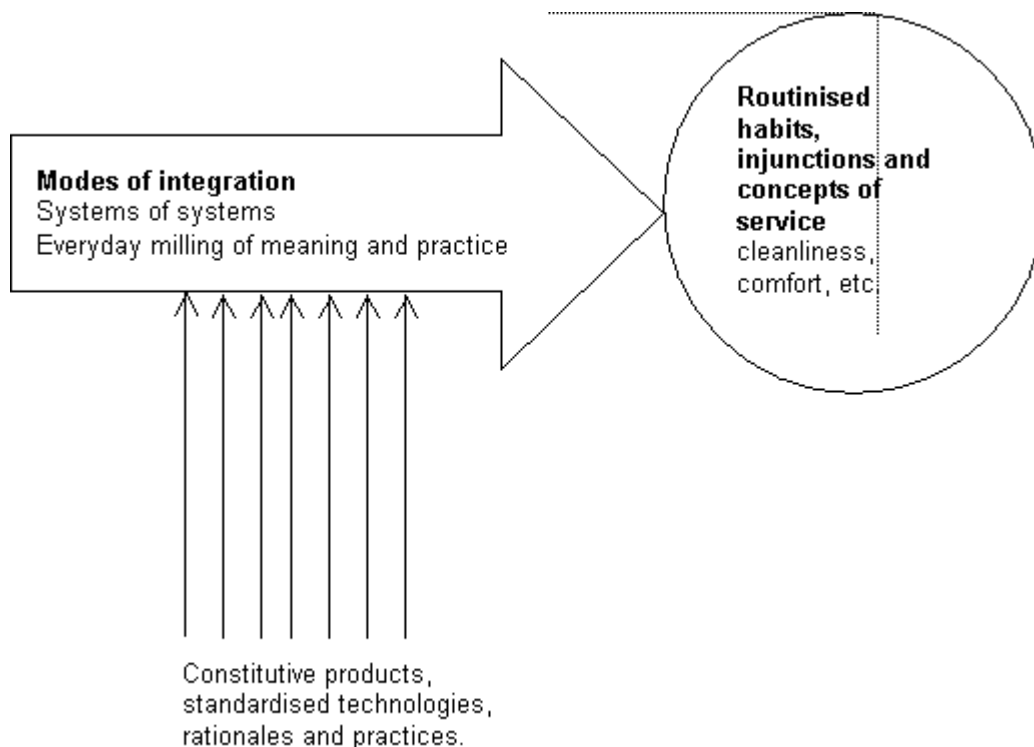

Figure 5   Modes of integration

The large arrow makes reference to two types of integration: that which people do as they stitch together their own ways of life (habitus (Bourdieu 1984), lifestyle, etc.); and that which is

in some sense written into path dependent or co-evolutionary sociotechnical systems of comfort, laundering or bathing. In this the figure begs further questions about how standardised technologies are in fact incorporated (i.e. integrated) into different cultures of meaning and practice and into different - already existing - sociotechnical systems.

What matters, from an environmental perspective, is not simply the global diffusion and appropriation of resource intensive products and standardised technologies, but what their use implies for the long-term respecification of normal conventions in different parts of the world. It is therefore important to appreciate the dynamics of this relationship between the necessarily localised milling of meaning and practice and the standardised, potentially global, 'scripts' of comfort or cleanliness written into air-conditioning systems or domestic washing machines and into the co-requisite sociotechnical arrangements (closed windows, machine washable clothing, etc.) on which their operation depends. By what routes do 'the same' technologies become normal, how are they integrated in different societies and does the end-result - the taken for granted status of uniformly standardised comfort conditions or meanings of appropriate laundering - differ depending on the distinctive socio-cultural, sociotechnical trajectory followed along the way? Such questions have yet to be investigated on any scale but are, I think, central to a discussion of sustainable household consumption.

A further point, also related to the micro dynamics of integration, has to do with the location of resource intensive practices like increasingly frequent bathing and laundering in the context of a broader framework of social and temporal priority. How do routinised practices in fact fit into daily routines and how are these patterns themselves organised and structured? This brings me to the third C, and a discussion of convenience.

6   Spirals of convenience

The term convenience, originally referring to fitness for purpose, was adopted in the 1960s to describe arrangements, devices, or services that helped save or shift time: convenience food being the classic example. Since then, time-related use of term has increased dramatically: all sorts of commodities are now sold as being convenient or as making life more convenient for those who use them. Warde, Shove and Southerton (1998) distinguish between modern and hypermodern forms of convenience, arguing that the former relates to the reduction of time taken to achieve a given goal and that the latter is about storing or shifting time, thereby providing people with greater flexibility or control over their own schedule.

Hypermodern convenience devices (like the freezer, e-mail, the car, or the video) promise to alleviate some of the pressures faced by those leading hurried and harried lives and who feel themselves to be pressed for time (Southerton, Shove and Warde 2001). There is much discussion about the extent and source of this experience. Schor (1992), for instance, identifies a work-spend cycle in which time free for friends and family is doubly squashed by the 'need' to work to earn more to spend on desired consumer goods, and by the need to consume. The vicious circle Hochschild (1997) describes is not so much an economic relation between work and spend as an emotional 'bind' in which the more time people spend at work the more stressful their family life becomes and so the more attractive it is to be at work. Time budget studies are inconclusive on the question of whether the balance of time spent at home or at work has really changed. Robinson and Godbey (1997), for example, show that Americans felt more rushed in 1985 than 1965, despite having substantially more free time. Similar findings are reported by Gershuny and Sullivan (1998). However, other research, including that described by Leete and Schor (1994), tells a different story, indicating that fully employed Americans worked 138 hours more in 1989 than in 1969.

Efforts to quantify the total number of hours spent doing this or that tell us little about the meanings of the activities so described, or about their timing, that is their duration and sequential ordering. Yet it is this aspect that is relevant in understanding how the social challenge of coordination is managed and hence the valuing of time-related interpretations of convenience. In writing about the social institutionalization of time, Eviatar Zerubavel (1985) describes the importance of the week, the weekend and the working day. He argues that these elements define a taken for granted sociotemporal order within which the 'rhythmic structure of social life' is played out. Being shared, the sociotemporal order constitutes a 'social fact' that exists beyond the individuals whose lives are organized and whose

experiences are recalled and calibrated around it (Zerubavel 1979: 107). More ordinarily, the day and the week are of value because they reduce the resources and energy otherwise required to coordinate even the simplest social encounter. Where temporal regimes are very highly structured, as in prisons or schools, there is virtually no scope for personal time-management and so no place for convenience.   In concluding that 'the obsession with convenience is a hallmark of the society of the schedule', Warde, Shove and Southerton (1998) claim that convenience is valued and relevant where there are problems of coordination and where individuals are obliged, and have scope, to construct schedules of their own. Such situations are associated with a loosening of formalized, collectively shared, temporal structures, and a fragmentation of episodes, with the effect that scheduling requires more coordinative effort.
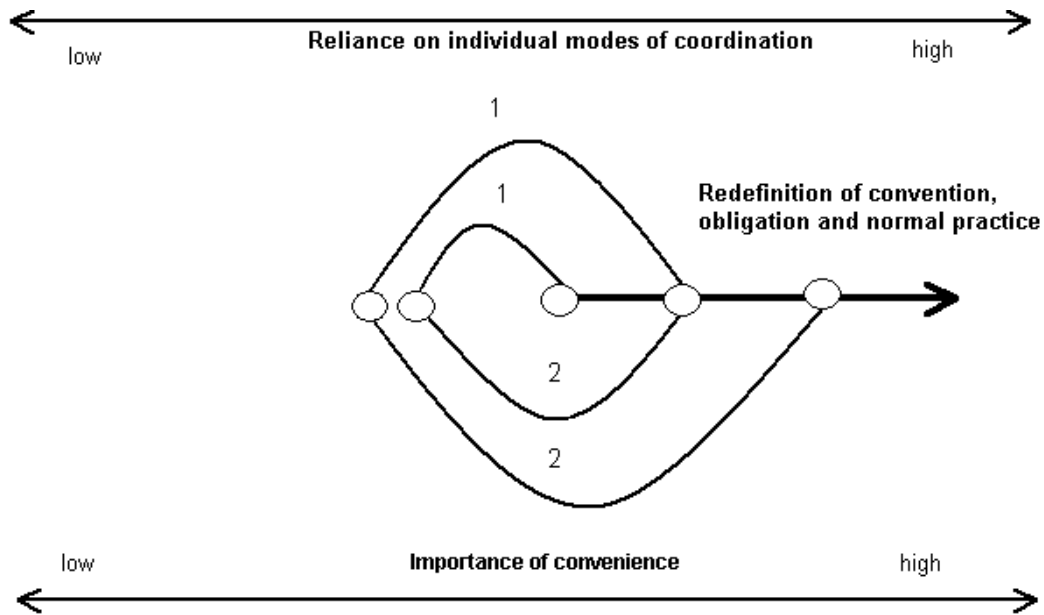
Craig Thompson (1996) describes some of the strategies adopted by professional mothers in an attempt to cope with a juggling lifestyle marked by fragmentation and the need for coordination. For these people, valued consumer goods were those that helped them 'stay on schedule' and 'hold it all together' whether through more precise planning, or through more or less continuous forms of multi-tasking. Dale Southerton's research (2001), also based on detailed interviews with families and couples, points to an important aspect of domestic scheduling that is easy to overlook. Southerton's respondents adopted similar methods to those described by Thompson but did so in a rather unanticipated way. Their goal was not to reduce the sum total of busyness or to spread the pressures of time more evenly throughout the day. Instead, and as this interviewee explains, periods of rush were deliberately created in order to carve out calmer moments of quality time elsewhere in the schedule: 'we keep Sundays free as like our quality time but it does make Saturdays a bit hectic ...we try and get everything done so that Sunday is free, so we can spend proper time together' (Southerton 2001: 22). Convenience devices come into their own in helping to create and manage the bunching of activity but in facilitating multi-tasking or in reducing the time a specific activity takes, such technologies typically have the effect of further fragmenting component tasks and of thereby increasing demand for convenience! There are, in addition, rules or at least conventions regarding the day to day management of rush and calm that have to do with the delicate balancing of obligation.

While convenient solutions 'create' time for valued purposes the risk is that they do so at an unacceptable cost to equally critical concepts of care and proper performance (Warde 1999). When is it legitimate to rely on convenience food and when not, what practical concessions have to be made to cherished ideals, what simply can't be shifted, and how does all this play out in the juggling lifestyle (Thompson 1996)? It is a complicated equation. On the one hand care should not be compromised by too much convenience. At the same time it is important to embrace convenience in order to create periods of quality time, or to achieve other coordination intensive ambitions like those of eating together (Southerton 2001).

Taking a longer-term perspective, it is clear that conventions and standards move and that what might once have been defined as a short cut or an unacceptable form of outsourcing may in time become perfectly normal. Hochschild describes this process as follows: 'Over time, store bought goods have replaced homespun cloth, homemade soap and candles, home-cured meats and home-baked foods. Instant mixes, frozen dinners and take-out meals have replaced Mother's recipes' (Hochschild 1997: 209). Here, then, is another mechanism of change. Senses of obligation and of what is necessary and normal creep as individuals seek ways of coping with temporal pressures of coordination and as they look for convenient solutions to otherwise intractable problems of scheduling and order. This search for acceptable compromise draws in new products, also requiring the redefinition of standards and service.

Though sparked off by an interest in the process of integration, this discussion has identified a further dynamic of everyday life. The spiral image below captures the successive redefinition of normal practice as convenient strategies are introduced to help cope with problems of scheduling increasingly fragmented moments of activity. It shows the importance of convenience within societies in which collective modes of coordination are in decline and shows how convenient 'solutions' exacerbate the problems they are expected to resolve.

Figure 6   Coordination, convenience and convention

Reliance on individual modes of coordination

low   high

1

1

Redefinition of convention,
obligation and normal practice

2

2

low   **Importance of convenience**   high

1   Use of convenience devices to ease problems of coordination and create periods of
     'quality' time

2   Convenience devices engender new divisions of time and labour, create more
     fragmented episodes, exacerbate problems of coordination and so increase reliance on
     (new) convenience devices to ease these problems and create periods of 'quality' time

This spiralling generates a corkscrew-like pathway of demand for convenience from which there seems no turning back. Wistfully reviewing her parents' way of life, this respondent (interviewed by Southerton 2001) hankers after a time of less convenience but greater temporal stability. She puts it this way:

if you go back to out parents' generation, like Monday was washing day, and they had to do it all by hand, and we have all these gadgets of convenience…, and we're still like we have our cars and that, and like neither my parents drove and they couldn't go to these places and take me wherever and life was like a lot more, well I don't know, a lot more sedate.

The sense of escalating time pressure is clear, but what are the environmental implications? The answer is not obvious for much depends upon how convenience is delivered.   In many cases, some form of outsourcing is involved with the effect that services once provided at home are now (partly) provided commercially. One likely consequence is to increase reliance on distributed, transport intensive, systems of provision like those associated with the ready meal industry. In other situations, instant access and flexibility are key. Having things 'standing by' like a well-stocked freezer may be important. Likewise, a car in the drive makes it possible to adjust schedules and nip out at short notice. In a different way, tumble dryers allow users to complete the washing whatever the weather, but at the cost of increasing energy consumption.

As the spiral shape suggests, these arrangements allow individuals greater control over their schedule but in so doing increase problems of coordinating with others whose schedules are subject to similarly idiosyncratic management. This implies a collective societal drift towards a do-it-yourself mode of coordination, perhaps leading to a twenty-four hour society held together by a network of self-managing individuals. In such a situation we might expect conventions of 'service', that is of normal practice and care to be continually revised in response to the 'need' to adopt more convenient strategies so as to manage and make space for valued aspects of everyday life.

7   Converging conventions?

The preceding sections have extracted instances and moments of change, the appropriation of air-conditioning, the increasing frequency of bathing and showering, the restructuring of laundering as a nearly daily event, and growing reliance on a repertoire of convenience devices. Each case has served to introduce a simple mechanical model of change: a ratchet, a system of systems, a pinwheel and a spiral. I have used these mechanical images as metaphors, as images to think with, but not as literal descriptions of process or as blueprints for programmes of environmental-economic modelling.

Two of the four figures, the ratchet and the spiral are escalatory in the sense that one state leads on to the next and, at least for the examples considered here, the next step is typically (though not necessarily) more resource demanding than the one before. Systems of systems and pinwheels can spin in different directions with the effect that some moves may result in less resource intensive concepts of service than those they replace. I am not about to construct a machine of change that somehow encompasses all these dynamics, though I would observe that multiple theories and models of change are required to make sense of the transformation of environmentally relevant practice.   The examples used above also show that what people take to be normal is immensely malleable. Since there are no fixed measures of comfort, cleanliness or convenience it is perfectly possible that future concepts will be less environmentally demanding than those of today. The big issues of sustainability therefore have to do with exactly where these various pathways, ratchets and spirals of change might lead, and with how concepts of service might be reconfigured.

Do science based specifications of comfort exert a magnetic (commercial) pull such that existing systems and meanings advance inexorably towards that standardised model? Likewise, how does the laundry 'system of systems' operate on a global scale? Is it the case that the washing machine is effectively ironing out previously important variations in what people of different cultures take to be clean? Is the 'demand' for convenience spreading, and if so will increasing reliance on standardised, commercialised, solutions have the effect of redefining conventions of normal and necessary care along increasingly similar lines? I do not have any answers to these questions but I do think they are important. From this macro perspective, the efficiency of one technology or another matters less than the concept of service that each sustains. In effect, the real environmental risk is of a sweeping convergence in what people take to be normal ways of life, and a consequent locking in of unsustainable demand for the resources on which these ways happen to depend.

This is obviously not the territory of green consumer choice, nor do initiatives in consumer education have much bite when it comes to the wide ranging, even global, respecification of convention and custom. It is equally clear that detailed study of the configuration and appropriation of individual appliances is not enough. What is required is an understanding of how such elements are integrated into systems of provision within and beyond the home, how they are fitted into constantly shifting frameworks of 'normality', and how concepts of service are thereby reconstructed.

In working towards this conclusion, I have highlighted a menu of issues at the intersection of consumption, technology and practice that have to do with modes of integration, with the transformation of sociotechnical regimes, and with the respecification of concepts of service. These themes have yet to receive the attention they deserve but there is, I think, plenty of scope to redirect energy in the field of environment-related consumer research and refocus it on these questions. This is fortunate for without effort of this kind, the really big issues of sustainability and everyday life, like those associated with the overhauling of comfort, cleanliness and convenience, will continue to slip by unnoticed and in the background of mainstream debate on consumption and the environment.

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