The material basis of everyday rationality: transformation by design or education?

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Environmental Education versus Behaviour-steering Design?

For many years, across a diverse range of institutions, considerable effort has been invested in so-called environmental education. The thought behind this is clear: our current socio-political and economic order confronts a problem of viability the likes of which are unprecedented in human history. Ultimately, this is bound up with the intensity with which contemporary society uses materials, which are being extracted, manipulated and disposed of at such a rate that the natural systems upon which this activity rests are being rapidly undermined.[1] People need to be informed of this, that they might recognise and act upon, the imminent peril, this by cutting back their levels of consumption, or at least the material intensity of their consumption.

Unfortunately, environmental education has not been terribly successful. While there has been a massive increase in the amount of environmental knowledge, there has not been much increase in the level of environmental action. Attitudinal studies have revealed a significant gap between what people say about environmental issues and what they do. In fact, overall materials intensity has not abated, but is continuing to rise. The most dramatic illustration of this is the rise in electricity consumption, as more and more people come on line, more and more people use air-conditioning as a matter of course, and so on.[2] All and all, moral and prudential persuasion – ethical appeals to what one owes to future generations, to present ones existing elsewhere, or to nature, or again, prudential appeals to a concern for family, friends and self – has not been particularly successful.

In response to this, industrial designers like Jaap Jelsma have suggested another strategy. The fact of the matter is, he says, that "people have to act in material landscapes constantly inviting their inhabitants to behave wastefully."[3] So a strategy more promising than environmental education would be:

to change the material landscape proper. If we are able to build new, sustainable forms of behaviour around new material infrastructures and devices, moral appeals become obsolete. Sustainability is then, for a part, delegated to a material landscape in which the nonhuman actors (machines, devices, infrastructures) translate the actions of the human inhabitants automatically towards ecofriendly outcomes. At those places in this landscape where human action remains necessary for realising sustainability – that is, at the interfaces with materiality – smart appliances can give warnings and offer feedback to guide actions of inhabitants towards behaviour that is energy efficient, non polluting, saving scarce resources etc. [4]

In other words, rather than creating an environment of artefacts which it is all too easy to use unsustainably and then appealing to people not to use them in this way, designers should create environments of artefacts which make it difficult for users to use them unsustainably. In this way, human laziness and cupidity become allies rather than enemies in the struggle to achieve a more sustainable social order.

Now even at first sight, this suggestion strikes one as mildly implausible. And the implausibility is only increased by the examples Jelsma adduces: different kinds of toilet cisterns, each more 'scripted' in its design for sustainability than the previous one, culminating in a toilet system so integrated into the waste water disposal system that water used elsewhere in a house is used in the operation of the toilet. The very fact that the examples prior to this one occur at a scale of design one step down from this, namely, at the level of the individual cistern, shows what the problem is: designs at the level of individual items or systems, however efficient they may be in various respects, do not sum up to a sustainable whole. De facto recognition of this fact explains, of course, why one must, as Jelsma himself begin to do, move outwards, encompassing more and more things in ever wider systems, in order to find the right level at which to pitch one's efforts at designing the landscape in ways which enforce sustainability. This is clearly a never-ending search, or at least one with no internally motivated, well-defined end.

The deep reason for this is clear enough: by sustainability we primarily mean a feature of a whole way of life, and to design individual things or systems of things in ways which one can only use readily in ways which enforce (what the designer assumes to be) sustainability is simply not the same thing as designing a sustainable way of life. Individually efficient uses of things and systems of things do not of themselves sum to sustainability; they only do so in a sustainable order, as necessary moments or phases of such an order. One can only conclude that Jelsma's alternative suggestion confuses design which enforces sustainability with design which enforces certain more or less local kinds of efficiency.[5]

Yet this dismal conclusion should not lead one to fall back upon the traditional and, as Jelsma rightly points out, dubious idea of environmental education. For there is something right in the idea of behaviour-steering design, something which permits one to see how to synthesise both strategies. In order to bring out what is right, I wish first to go back to some of the ideas which have shaped the notion of behaviour-steering design, in particular, some ideas of the French sociologist-cum-philosopher Bruno Latour. I will then attempt to extend these ideas using some insights derived, via the Marxist writer Neil Maycroft, from Albert Borgmann and Ivan Illich. This combination of Latour, Maycroft, Borgmann and Illich permits one to see that and how two ostensibly competing strategies are really two inseparable sides of the one strategy for moving towards a more sustainable order.

Latour on the Missing Masses in Social Theory

In his essay 'Where are the Missing Masses? Sociology of a Door', Latour speaks of the search undertaken in the nineties for so-called 'dark matter': physicists had found that their physical theories entailed there to be far more matter in the universe than could at that time be experimentally determined and so they set out to find the missing masses.[6] Latour sees the situation of sociology as analogous to the situation of physics. A central question for sociology is what is the glue which binds humans together in something called society? According to Latour, traditional social theory has not identified all of this glue. It, too, needs to search for some missing masses.

There have been two traditions of response to the question of social order: the individualistic tradition of Hobbes, Locke and, say, games-theoretic conceptions of social order according to which society is a sum of its parts; and the more holistic tradition from Herder and Hegel through Marx to Habermas and Parsons which rejects any such atomistic conception. But both conceptions of society and social order are characterised by a common assumption: both assume that the material entities with which we are engaged in our everyday daily lives are exclusively natural, artefactual or symbolic. In other words, both traditions assume that for purposes of explaining social order one may assume, or at least not deny, that any entity designed for such and such is designed to bring about such and such along a causal route which involves recognition by a user of it as designed for such and such.[7]

But what if this assumption made it impossible to account for social order? That is, what if social order of any complexity greater than that of small family, clan or tribal group required that social interaction be mediated by entities designed to cause individual members to engage in certain behaviours in ways which do not involve getting these members to recognise and reflect on the fact that this is what they are designed to do? Then in order to account for social order, sociology would need to go in search of its own missing masses. Let us define rational behaviour to consist in recognition that doing A is either the prudent, right or respectful thing to do, then doing A for this reason. Then, according to Latour, beyond a certain degree of social complexity, rational behaviour in this sense would not be possible unless some of the material things with which we have to do in our daily lives were designed to get us to do what it is either prudent, right or respectful to do without our having to recognise it as thus designed and interacting with it for this reason.

In other words, beyond a certain degree of complexity, rational behaviour is only possible if across significant tracts of our everyday behaviour the things with which we have to deal relieve us of the burden of behaving rationally. One striking example of such disburdening things is the case Latour mentions of the automatic door closer, which relieves one of the burden of having to think about keeping warmth in or out of a room. But other examples are one-way entry turnstiles in shops which force one to exit via the cash register, dual carriageway highways which make it unnecessary to worry about oncoming traffic when overtaking; rails on stairways and in underground tunnels which

prevent people from wandering from one side to the other, thereby encouraging two counter-directional streams of pedestrian movement which do not collide; speed humps which force one to drive slowly rather than monitor one's speed with the speedometer; freeway exit lanes which guide one to that part of the city in which one's travel destination is located; pill bottles which parents can thoughtlessly leave lying about since children cannot open them, etc., etc. The more complicated and more populated everyday life becomes, the more such disburdening devices are needed.

Imagine, for example, how burdensome it would be for each individual commuter were the hundreds of commuters accessing and exiting an underground railway system at peak hour expected to coordinate their movements in completely reflective fashion. Note that the problem here is not one of insufficient signage with which to coordinate action since the larger the problem to be solve – in this case entry to, and exit from, the underground – and the more quickly it has to be solved, the less effective signs become. Rather, the more effective and, beyond a certain limit, the only solution is to construct the system of entry and exit in such a way that the task is simplified to the point where large tracts of its solution can be accomplished unthinkingly. Thus, one might build two different smaller tunnels, one labelled 'in', the other 'out', rather than one large one. In general, the more complex social arrangements become, the more necessary it becomes to have background arrangements of material entities which constrain individuals to act in certain habitual ways, thereby saving themselves and others numerous calculations as to what they will do.

These observations immediately throw new light on the failure of moral and prudential persuasion regarding environmental matters. No doubt many people are too lazy and avaricious to act on their environmental knowledge. Others again, while they would ideally like to behave more sustainably, might regard their concrete circumstances as not permitting them to realise this desire. But all this is beside the point when it comes to explaining the failure of moral and prudential persuasion. I could well decide to drop my habit of buying environmentally damaging Kellog's corn flakes from the supermarket in favour of purchasing muesli made from organically grown grain from the uni food cooperative. This, we may assume, would involve considerable effort and difficulty on my part. So procuring my breakfast now becomes a problem whose solution requires more thought and planning. Clearly, the same will go for all the other things I have learnt through my environmental education and now wish to put into practice. And so, with each further attempt to realise the fruits of my environmental education, the more I disrupt the patterns of habit which form the background against which my rational behaviour takes place, indeed, which provide me with the behavioural segments and modules out of which I stitch my rational behaviour together.

At this point, it appears that acting on moral and prudential persuasion must rapidly succumb to a law of diminishing return. Insofar as such persuasion is understood to consist, as both Jelsma and environmental educationalists themselves typically assume, in information and arguments designed to change individual consuming behaviour, it is fundamentally self-defeating. For it in effect calls upon individuals to undermine the

conditions under which they as individuals can engage in rational behaviour at all. Precisely for this reason, any individual conscientious enough to take such moral and prudential persuasion seriously must very quickly reach an upper limit beyond which it becomes impossible to function in society anymore. The very possibility of rational behaviour, that is, of behaviour arising out of conscious deliberation on what it is right, worthy or even simply prudent overall to do, presupposes that initially and for the most part we simply follow the behavioural scripts built into the objects around us in order to reach our individual goals.

Thus, the conclusions we may draw from Latour are the following: a society as complex as ours requires that the entities with which we deal in our daily lives script simplifying behavioural routines for us, such as the supermarket store without seats or flat surfaces in the 'foyer' space which forces one out of the store rather standing around with one's purchases, thereby clogging up the space. And standard environmental education simply fails to understand this. It thus fails to appreciate that the real task is to change those material arrangements of things which enable the repertoire of typical behaviours we need to have in order to engage in individual rational behaviour in a complex society. Perhaps indeed we should give thanks for, rather than lament, the fact that people are not as inherently conscientious as they might be since the results of greater conscientiousness would potentially be chaos.

Maycroft on the hidden usefulness of things

The picture Latour paints is bleak or at least one-sided; it seems to imply that we are so hostage to the existing material arrangements of things that it literally makes no sense to speak of attempting to map out in advance a rational strategy for moving forward to a more sustainable order.[8] Fortunately, the things around us sculpt our behaviour in more ways or senses than Latour considers in his essay, and this can be used to leaven the picture. Indeed, it enables us extract what is right both in Jelsma's notion of behaviour-steering design and in standard strategies of environmental education, this by suggesting that both belong together as two sides of the one strategic perspective.

Latour's central point is that, beyond a certain degree of complexity, social order requires that the entities with which we have to do on a daily basis have a material character which is neither simply natural nor simply functional, but so to speak 'in-between' – 'in-between' in the sense that the material character of things encodes various behavioural routines which we act out in our daily lives without any kind of reflective thought or self-conscious awareness of them, behavioural routines out of which we string together our rational behaviour. Designers create such 'in-between' things and arrangements of things by building behavioural cues into entities, or indeed by blocking certain cues off. Thus, a chain saw is designed to prevent one's using it with one hand only, thereby relieving one of the burden of reflecting on whether this is a prudent thing to do. But the artefacts sculpt behaviour in ways other than Latour considers, ways in which they are not typically designed or intended to sculpt behaviour. Indeed, such typically unintended sculpting is in a way more fundamental than the kind of thing Latour considers – more

fundamental in that it constitutes a necessary condition of what Latour neglects: our capacity for bringing and keeping our behavioural routines, hence the structures and arrangements of artefacts implicated in these routines, under our control.

The Marxist writer Neil Maycroft de facto picks up on this further sense or dimension of behavioural sculpting. Drawing upon the views of Albert Borgmann and Ivan Illich, he draws attention to the ways in which artefacts and systems of artefacts shape the behaviour of users in various ways without their being typically intended or designed to do so. And in a manner not dissimilar to those who speak of behaviour-steering design, he thinks that "the manner in which the physical characteristics of many objects mediate human action has substance [that is, is relevant] for those wishing to advance"[9] normative concerns. In order to investigate how this might be so, he explores the various ways in which objects can be useful for us, even when this usefulness is not only not something of which the user is aware, but is also not typically designed into these objects. Of relevance for the discussion here are two such aspects of hidden 'usefulness' – what Maycroft rather misleadingly calls use-value. The first Maycroft calls, following Borgmann, the experiential, the second, following Illich, the convivial. Let me take each in turn.

a. Borgmann on the 'engaging'

The American philosopher Albert Borgmann has claimed that the use of some artefacts is more 'engaging' than others. Maycroft illustrates what Borgmann is getting at with the following example: one can generate warmth either by turning the central heating on or by laying a log fire using wood one has gathered oneself. The former, says Borgmann, is not 'engaging' while the latter is. According to Borgmann, modern capitalist society has progressively moved from artefacts whose use requires more to artefacts whose use requires less 'engagement'; its history has been "the history of growing disburdenment and of diminishing engagement as attention paid to the producing artefact has receded to be replaced by an immediate concern with the commodity produced,"[10] in this case, warmth. Clearly, it is not hard to see how one could spin out of this claim the thesis that modern consumer capitalism inherently contains a certain tendency to infantilise consumption, as it renders our use of things progressively more passive.

Now in distinguishing between 'engaging' and 'non-engaging' things Borgmann is not indulging in any silly celebration of household drudgery 'unencumbered' by modern, technologically sophisticated devices. He argues against the intrusion of technology only insofar as it makes "knowledge and understanding of the object itself … increasingly obscure,"[11] such that one can, for example, no longer effect simple repairs. So what Borgmann means by an 'engaging' thing is something in using which one has to exert a certain degree of skill and good judgement, such that the product of one's use of it is not just something which satisfies a certain desire or need, but which stands as a testament and record of the skill and judgement of oneself and one's use. For clearly, if there is anything which distinguishes behaviour as infantile, then it is surely 'disengagement' in the sense of being purely passive, such that the goal of the behaviour is reached without the overcoming of challenges and obstacles through the application of one's own skill

and judgement. Conversely, 'engaged' behaviour is not merely a matter of satisfying desire. Insofar as what it accomplishes stands as a testament to the skill and judgement, the taste and character, of the behaver, the artefacts used in this accomplishment are 'engaging' in the sense that their effective use requires personal investment, precisely engagment, on the part of users themselves.

Examples of entities which will be 'engaging' in this sense are obviously the artefacts and tools wielded in craft activities. As such, this reading of 'engaging' things is consistent with Borgmann's suggestion that, often, if not always, the more technically complicated things become, the less 'engaging' they are – as users become increasing unable to understand how the things they use work and so find themselves increasing unable to relate to them except as passive recipients of the services they provide. It would seem, then, that Borgmann has identified a genuine dimension along which entities are 'useful' in ways not intended by any designer of these entities, and in ways not necessarily cognised and factored into deliberation by a user of these entities. Entities are 'engaging' insofar as, in the sense that, they bring their users into the world as coherently acting, more or less skilful selves with a sense of causal limits and responsibilities, their own and those of other entities. And arguably at least some significant number of the objects and entities we use must be 'engaging' in this sense, otherwise we would be selves merely in the sense in which babies are selves.

b. Illich on the 'convivial'

Maycroft also appeals to Illich's idea of convivial tools. This is the idea of artefacts the effective use of which brings one into convivial relations with others. Illich understands the notion of a tool or artefact widely, and in this wide sense of the term both private cars and the vehicles belonging to a system of public transport count as tools. Now arguably using public transport creates and sustains social relations in a way using the private car does not. This is not to deny that use of the private car brings one into contact with people: in order to use one's car, one must come into contact with, e.g., mechanics, service station attendants, etc. But these contacts are all built, as parts of the necessary support systems, into the process of using and maintaining one's car. As such, they are not social contacts of the kind Illich has in mind. Rather, they are merely relations of cooperation driven by enlightened self-interest, however much they might be leavened on the side by good will and friendship.

The word 'convivial' comes, of course, from Latin, specifically, the verb convivo 'I live with', which has the more figurative or extended meaning of 'I feast with'. It thus connotes social relations which are precisely not ones which, however friendly and warm, exist in order to support one's use of things. So use of the car, even though it brings one into contact with many other people, is not convivial in Illich's sense. By contrast, using public transport is 'convivial': it brings the user into contact with all sorts of people who are not there to support one's own use, but are rather co-users of it. In this way, numerous non-functional social relations spring up around it. The notion of a 'convivial' tool or technology is thus the idea of something artefactual around the effective use of which 'convivial' social relations emerge. And perhaps at least some of our artefacts must be

'convivial' tools or technologies if any kind of social order between beings such as ourselves, who are capable of wielding the first person, is to be possible.
c. Relating the dimensions of engagement and conviviality

Maycroft sees in these two dimensions of hidden usefulness, and indeed another one which I have not mentioned, the possibility of what one might call an ethics of objects.[12] These and the other dimensions of hidden usefulness Maycroft distinguishes provide a criterion for assessing the ethical worth, and not merely the efficiency, of products and services. Consequently, claims Maycroft, the idea of ethical and unethical artefacts constitutes a useful addition to the critical armoury of environmental activitist and socialists. "If, for example, particular products could be shown to be cognitively 'disarming', non-disclosing, non-engaging and anti-convivial then such considerations could be added to those of resource depletion, pollution, cost of ownership and so on." [13]

Clearly, Maycroft's idea of an ethic of objects has serious problems. It is just false that higher degrees of 'engagingness' or 'conviviality' make for greater ethical preferability. Making terrorist bombs can involve the 'engaged' use of 'engaging' tools. Using low-tech pots and pans out in the jungle to process the cocaine harvest is no doubt far more 'convivial' than subjecting the cocoa leaves to more sophisticated chemical processing in secret labs in downtown Lima. Even so, terrorist bombing and the drug trade are not ethically good, and so the 'engagingness' and 'conviviality' of the artefacts and tools used in them constitutes no unqualified ethical merit. In fact, the dimensions of hidden usefulness Maycroft distinguishes are not in themselves ethical dimensions of assessment at all; insofar as something qualifies as ethically preferable because it has high degrees of engagingness or conviviality, it does so because, or under the presupposition that, the use which it makes engaging and convivial is ethically good, or at least not ethically bad.

Furthermore, Maycroft overstates the extent to which an ethics of objects adds to one's critical armoury. In fact, it only gives us a few more arguments to deploy alongside the familiar claims that people need to consume less because otherwise they will destroy other species, deprive future generations of resources, create a world in which their great grandchildren will have a very tough time and/or cause destructive changes in weather patterns even within their own lifetime. Maycroft thus fails to address criticisms of the kind raised by Jelsma. Yet it is possible to develop out of Maycroft's ideas a conception of how behaviour-steering design and standard environmental education might in fact be two halves of the one coin needed to shift the behavioural routines 'encoded' in everyday artefacts which constitute the necessary background to individual rational action undertaken in a complex social context.

Reconstructing Maycroft in order to get beyond Latour

Much reflection on how to achieve the kind of social order which does not purchase the present at the cost of the future has tended to treat the notion of sustainability as a more

or less technical, engineering-cum-economic notion. But any purely technical understanding readily encounters a dilemma: either it constitutes the description of a set of circumstances which is, quite trivially, a sustainable one, but provides almost no idea of how to operationalise, hence implement the description. Or it turns out to be so genuinely technical and implementable that it is easy to imagine implementations and operationalisations which are manifestly not sustainable. Thus, on the one hand, natural capitalists speak insouciantly of closing loops to such a degree that nothing harmful gets out and not too much is taken from the environment – clearly, indeed almost tautologically a sustainable condition, but there is nothing in this to indicate how we get to it. On the other hand, one implements extensive recycling schemes only to discover that more harm is done than if one simply burnt the lot, or even just sent it to landfill.

This oscillation between vacuity and insufficiency shows that sustainability is not simply a technical notion. Rather, it displays the logic of a virtue, specifically, of an entire social order. And just as it is surely unreasonable to expect there to be any non-tautological definition of an individual virtue such as courage, so, too, one should not expect there to be any non-tautological definition of sustainability. The problem is, of course, that whereas we have clear cases of courage to which to appeal and by which to orientate our behaviour, we have no such clear cases of sustainability. It would, for example, be wrong, or at least not obviously right, to appeal to Michael Mobbs' sustainable house[14] as providing such an example. It is not in the least clear that the principles upon which Mobbs' house is constructed constitute a necessary part across the board of a sustainable social order. Thus, a general application of these principles might well involve such high levels of material intensity that current unsustainability would simply be relocated rather than eliminated.

Yet although we do not have good examples of actual sustainability in the same way in which we have good examples of courage, precisely such things as Mobbs' house do count as intimating the elements out of which a more sustainable order might be composed – what proportion and mix being things we cannot anticipate in advance. Similarly, we know that using less pesticides in agriculture, taking agricultural land out of production in order to protect native flora and fauna, and turning office lights off rather than leaving them on all night are the kinds of thing one would expect of a sustainable social order – even though we cannot say how these things might be implemented in genuinely sustainable ways. For of course none of these things, considered in isolation, is eo ipso a sustainable form of behaviour. Even so, they count as illustrations of the kind of thing which we, given our current state of knowledge, would expect to find, in some suitable mix, in a sustainable social order.

This point immediately suggests a rather different way of understanding the potential of what Jelsma calls behaviour-steering design. We should think of such designs and the artefacts and systems in which they result as constituting anticipatory snippets of a single social order possessed of the social virtue of sustainability. More precisely, these devices or systems of devices must be understood as anticipating alternative Latourian arrangements of artefacts 'encoding' alternative behavioural routines out of which

alternative, more sustainable individual rational actions can be stitched. Of course, as mere anticipatory snippets of a future sustainable whole they are not the reality thereof. In particular, their successful implementation as the more sustainable material basis of an alternative, more sustainable everyday practical rationality requires that they be linked up with one another and embedded in a wider, more sustainable social whole. So insofar as behaviour-steering design is to accomplish more than the creation of some unconventional gadgets whose contribution to sustainability is imponderable, it must be undertaken only in conjunction with efforts to 'educate' people as to the moral and prudential good sense of the sustainable social order of which these gadgets would be a part. Pace Jelsma, behaviour-steering design could not constitute an alternative to cognitively orientated strategies of moral and prudential persuasion, as manifest in contemporary practices of environmental education.

Yet the insight which reconfigures Jelsma's notion of behaviour-steering design does not leave the notion of environmental education itself untouched. We have just said that the real usefulness of what Jelsma calls behaviour-steering design lies in illustrating in advance aspects of the routinised behavioural routines which form the basis of an alternative, more sustainable everyday rationality. From this the conclusion was drawn that these designs can only be 'sold' as steps towards a more sustainable order in conjunction with the 'sale' of the idea they bring with them of that more sustainable social order in which the fruits of these designs take their place as alternative arrangements of artefacts encoding more sustainable behavioural routines.

But then this 'sale' of the wider idea cannot consist in environmental education as typically practised, which seeks, in naively apolitical, perhaps even implicitly scientistic or technocratic fashion, to inform individuals about the environmental facts and advise them on how they might individually behave more sustainably. Rather, moral and prudential persuasion must assume more radically political and politically radical form. For its central issue now becomes what it would take to create a social order in which sufficiently many of the interests of individuals within this order could be realised in ways which did not affect detrimentally, in whatever ethical or prudential senses are deemed applicable, the surrounding natural environment. Clearly, such an order would be what someone with environmental concerns would regard as good in an Aristotelian sense. For Aristotle, living well is not simply a life of virtue, which, as he puts it, "no one would call happy unless he were maintaining a thesis at all costs."[15] Nor is it simply a happy life since when simply identified with the happy life it would be nothing more than a life of ease and pleasure. Rather, it is a felicitous union of virtue and happiness in which each gets its proper due.[16]

So what Jelsma misleadingly calls behaviour-steering design is, properly understood, only ever part of an essentially political strategy, and the role it plays in this strategy is progressively to make available the artefacts and systems of artefacts 'encoding' the behavioural routines out of which the environmentally sound good life would potentially be composed. But then, of course, its designs and products are augurs and emissaries of a life whose goodness is alien to those to whom these designs and products are made

available. Precisely for this reason, such design cannot consist simply in thinking up clever ways of compelling more sustainable behaviours. In particular, it must move beyond this orientation to consider the hidden dimensions of usefulness to which Maycroft draws attention. For by not simply presupposing as already present in human existence, but rather themselves possessing the virtues of 'engagingness' and 'conviviality', such designs can form the seeds around which, within the existing order, alternative behavioural routines can begin to crystallise. These hidden dimensions of usefulness constitute precisely the hidden pay-off which make it tolerable to use artefacts and systems of artefacts which, measured in purely functional terms against less sustainable devices, come off second best.

Note, however, that insofar as this kind of design does incorporate more than the cleverness which enables unreflectingly sustainable use of them, it not only shows itself to be dependent upon an avowedly political form of environmental education and persuasion. It also intimates an inverse dependence of the latter upon it. Latour points out that everyday practical rationality only takes place as the stitching together of diverse behavioural routines encoded in the artefacts of everyday life. So-called environmental education can thus manifest itself in behavioural change only to the extent that the material environment in which people find themselves changes to allow such manifestation. But we can resist Latour's Hegelian insinuation of a total subordination of individual practical rationality to the discipline of existing behavioural routines.[17] An alternative discipline can emerge within the old regime provided that it is conceived not simply in Latourian terms as a more sustainable new regime, but as enabling a new kind of 'engagingness' or 'conviviality', or even as recapturing an old, which sufficiently rewards individuals for their preparedness to participate in it. Thus, the 'conviviality' of the corner shop might more than compensate for higher price of goods purchasable there. Crucially, this need not be understood in the mawkish sense characteristic of much Green thinking, namely, as the recovered joys of a long-lost sense of community. The virtue of the 'conviviality' engendered by the corner shop might simply be the unofficial neighbourhood watch it provides.

To the extent, then, that one designs not just for unthinking sustainable use, but also for such hidden dimensions of usefulness, one's anticipatory snippets will, to the degree that they realise such dimensions, stand as the empirical, experiential proof needed that the claims of moral and prudential persuasion are correct: this way of doing things is not only a sustainable way of doing things, it is a good way of doing things in Aristotle's sense. For it represents the felicitous coincidence of the ethical with one's own private interests – a condition which Aristotle rightly assumes most humans to prefer over all others (since by and large humans are neither particularly bad nor particularly good, but prefer to do what is good if doing so does not come at an exorbitant prudential price). Note that there is nothing in this picture to exclude the idea that such insight involves a shift in what one is prepared to accept as the right balance between ethical and prudential considerations. What counts as this felicitous coincidence or, as Aristotle at one point describes it, this sophrosyne,[18] is potentially dynamic and evolving. The experience that this is a good

way of doing things could therefore also constitute a revision of, and movement beyond, what one had previously been disposed to regard as a good way of doing things.

In this regard, the hidden usefulness of 'convivial' design would seem particularly important. For such 'conviviality' can extend to the collective experience of the worth of the design as a felicitous coincidence of ethics and private interests, hence motivate the attempt to embed alternative, more sustainable design of everyday behavioural routine outwards, to encompass more and more of the everyday arrangement of things. It is thus the hidden usefulness upon which one could piggy-back the embedding of individual, putatively more sustainable ways of unreflective behavioural routine into larger and larger contexts – something which is ultimately necessary if the claim of any such alternative routine to be more sustainable is to be validated. Once again, in this process of expansion and embedding, there would obviously be a role for moral and prudential persuasion. Crucially, however, it would be evidence-based: based in the concrete success of the individual efforts for whose trialling it has initially argued and for whose embedding in a wider context of alternative, more sustainable routine it now argues.

Some Theoretical Gains

I want to end by briefly intimating some theoretical virtues of this conception of how to transform and to unify both behaviour-steering design and environmental education. The first thing to note is that it does not encounter the problem encountered by Maycroft's ethics of objects: because from the outset sustainable design is understood as integrated into the clearly ethical enterprise of realising an environmentally sound good life, the 'engagingness' and 'conviviality' of the use of artefacts and systems of artefacts is from the outset assumed to be ethically acceptable. 'Engaging' bomb-making and 'convivial' cocaine extraction are ruled out.

More importantly, this account yields a number of useful theoretical corollaries concerning (a) what we mean by a sustainable order and the role of engineers and designers in socio-political efforts to achieve such an order; and (b) the relation always assumed by environmental activists to exist between being sustainable and smallness, localness, de-centralisation, indigenousness, slowness and context-sensitivity.

a. Sustainable engineering and design

The upshot of this account is that to design sustainably is to design artefacts and systems of artefacts for a whole form of sustainable life. So this kind of engineering and design must be broader and more political in a double sense.

Firstly, it must incorporate into its design brief more than just standard considerations of cost, benefit and risk; in particular, in addition to designing for some kind of reduction in materials intensity (since otherwise it could not claim to be aiming at creating a more sustainable artefact or system of artefacts), it must design for such otherwise hidden dimensions of usefulness of the kind indicated by Maycroft. This requires in turn a

blurring of the boundaries between learning how to design technology and learning about the diachronic and synchronic, more-than-technological consequences had by artefacts and systems of artefacts when they are weaved into the social fabric. Thus, learning to design sustainably involves understanding the history, anthropology, politics and philosophy of technology.

Secondly, since the true sustainable potential of its designs is only realised in the sustainable order of which it seeks to provide an anticipatory snippet, it must design in a politically informed sense. In particular, it must be integrated within larger strategies of 'selling' to the community at large the whole idea of implementing better, more sustainable designs. Thus, in the current Sydney water crisis, for example, it would require engineers and related technical specialists to acquire the skills of working in consultation with diverse sectors of the community in order to explain the costs and benefits of existing designs and those in the pipeline so that there would be a broader community understanding of how these designs work. In this way, a better understanding of technological issues might be built up which acts as a bulwark against governments inclined to treat public opinion as a wild beast to be pacified with silly solutions such as desalination plants.

b. Smallness, localness, distributedness, slowness and context-sensitivity

Green politics, at least of the more radical kind, habitually assumes there to be some intrinsic connection between environmental sustainability and small, local, distributed, slow-moving and context-sensitively designed arrangements of artefacts. Thus, it has always regarded itself as finding natural allies in the alternative technology movement descended from sixties and seventies counterculture; the appropriate technology movement, as inspired by the work of Ernst Schumacher and typically endorsed by non-governmental development agencies like Oxfam; the slow movement which has emerged, particularly in Italy; and a plethora of movements to preserve various indigenous, local or traditional phenomena, from cultural sites through endangered languages to historical domestic plants and animals.

Now this assumption is surprising since there is clearly no necessary connection between sustainability and any of these things. Moreover, this assumption is sometimes counterproductive in that it disposes environmentalists to favour putative solutions which may not be truly, or at least not significantly, sustainable. A classic case would be the common belief that the installation of rain-water tanks in suburban homes is an inherently sustainable step with which to complement, if not actually replace, centralised systems of water supply and removal. I suggest, however, that what is right in this assumption can be explained by the idea that so-called behaviour-steering design and environmental education have to go hand in hand, as necessary halves of an intrinsically political strategy for shifting Latourian behavioural routines in a more sustainable direction. For typically, if not necessarily, the indigenous, the small, the local and the de-centralised provide concrete illustrations of how different designs manifest and reflect different forms of life. Moreover, these kinds of design are precisely those which tend to preserve

within them the hidden dimensions of usefulness which sustainable design, as part and parcel of a strategy of radical social change, must itself exploit in order to play its part in creating more sustainable counter-practices within the currently unsustainable whole.

Endnotes

[1] So the problem is not so much, as the Club of Rome and others once prophesised, that materials will run out, for typically human societies have found ways of coping with this.

[2] In Australia this has led to shift in peak season from winter to summer.

[3] Jaap Jelsma 'Design of behaviour-steering technology' *Proceedings of the International Summer Academy on Technology Studies*, Deutschlandsberg, July 9-15, 2000, 121. [Other versions are available online: 'Design of Behaviour Steering Technology', www.ifz.tu-graz.ac.at/sumacad/sa00_jelsma.pdf

[4] Jelsma op cit 121.

[5] Or perhaps other kinds of more or less local goal which one might reasonably presume to facilitate sustainability.

[6] Bruno Latour 'Where are the Missing Masses? Sociology of a Door' in Bijker, W., and Law, J., (eds) *Shaping Technology/Building Society*, Cambridge: Cambridge University Press, 1992, 225-257. [Also at http://www.ensmp.fr/~latour/articles/1992.html last accessed 1 Dec 2005 – Ed].

[7] One might say, only semi-seriously, that both conceptions assume that causation which is not solely natural is Gricean.

[8] See note 17.

[9] Neil Maycroft 'The objectness of everyday life: disburdenment or engagement?' *Geoforum*, Vol. 35, 2004, 713.

[10] Maycroft op cit 718.

[11] Maycroft op cit 718.

[12] Maycroft op cit 721.

[13] Maycroft op cit 721.

[14] More information on the *Sustainable House Project* is available at http://www.sustainablehouse.com.au/ .

[15] *Nichomachean Ethics Bk. I*, Ch.5, 1096a 1-2.

[16] What Kant called *Glückseligkeit*, the condition in which the just prosper.

[17] Cameron Tonkinwise has suggested to me (in personal communication) that this is to misconstrue Latour's position, that in fact he would be happy to endorse much of what is said here. But the claim made here against Latour is a recontructive one: while he would certainly not want to be understood as embracing the strong institutionalism of Hegel (or at least of the Right Hegelians and such latter day equivalents as Marquard and Fukuyama), he seems to me pushed in this direction when he moves from his good point about the missing masses to make two further claims which are not entailed by this good point. The first is that there is no strict dichotomy, no qualitative difference, between the human and the non-human, but at best a gradient, hence a difference of degree – see pp.240, 244, 248 and 254 of Latour 1992. The second is that "(t)he distance between morality and force is not as wide as moralists expect; or more exactly, clever engineers have made it smaller" (Latour 1992, 253), which appears to contain an implicit challenge to the distinction upon which Durkheim once insisted "… between moral and causal force, between the force of conscience and the force of external circumstance … ." (Jürgen Habermas *Theorie des kommunikativen Handelns, Vol. II*, Frankfurt am Main: Suhrkamp Verlag, 1982, p.309; my translation). This tendency to assimilate morality and compulsion to one another reminds one of Hegel's tendency to assimilate natural and human laws – (see *Georg W.F. Hegel Grundlinien der Philosophie des Rechts, Theorie - Werkausgabe, Bd. 7*, Frankfurt am Main: Suhrkamp Verlag, 1970, pp.15-17) – and indeed to understand freedom as the recognition of necessity rather than as Kantian 'spontaneity'.

[18] See *Nichomachean Ethics*, Bk. VI, Ch.5, 1140b,12.

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