ARCHITECTURAL DESIGN AND ETHICS

Tools for Survival

THOMAS FISHER

Architectural Press

Architectural Design and Ethics

Tools for Survival

Dedication

To Claudia, Ann, and Ellen

Architectural Design and Ethics

Tools for Survival

Thomas Fisher

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Preface

I have been writing about architecture for most of my professional life, and so this book about the relationship of design, ethics, and sustainability represents an experiment for me, and a worthwhile one, I hope, for you, its readers. Unlike others I've written, this book offers no criticism of specific buildings, and no evaluation of particular environments. Instead, its seven chapters on ethics, 28 essays on places, and 14 brief design principles all try to provide a framework that the design community – and perhaps the broader public – might find useful in getting ready for what I see as the almost inevitable collapse of some of the key social and environmental resources upon which we have built our world and around which we have constructed our lives.

Many of us may talk about the importance of sustainability and growing numbers of us use 'green' materials and 'energy efficient' technologies where possible, but very few of us seem prepared for the scale of disruption that accelerating climate change will almost certainly bring. As coastlines flood, crops fail, and populations flee, we will face major shortages of affordable housing, educational facilities, workplaces, and public services in some regions, and huge property losses and environmental disturbances in others. Add to that the anticipated scarcities of key resources like oil, gas, and fresh water, and the exponentially growing human population, we face a new century quite unlike the one just past.

The appropriate reactions to these challenges will vary from one place to another. The abandonment of cities because of flooding, as we have seen in New Orleans, will require one set of responses; while the desertification of landscapes because of drought, as we have seen in the inland areas of several continents, will demand another. Rather than go into depth about what those particular responses might entail, the book tries to outline a sensibility

and mindset that we will need in order to deal with the coming challenges successfully. For the design community, the book also tries to sketch out a new way of thinking about design practice, one based on a public-health model in which we try to do the most with the least for those who have little and who need us the most.

One of the greatest hurdles we will encounter in this century may be less that of environmental collapse, and more that of fear. As my psychologist father used to say, fear often arises out of an apprehension of loss and a worry that others will take advantage of us as a result, and this is where ethics can help us deal with the material deprivations we will all face. Ethics puts loss in perspective by helping us see things from the viewpoint of others, over a longer period of time and from a greater distance, while highlighting the fundamentally paradoxical fact that we can often help ourselves best by helping others, gain more by giving more, and have more by requiring less. In a future in which giving more will become increasingly important, and having less increasingly common, ethics will become ever more valuable.

Designers often think of ethics in terms of codes of professional conduct. But ethicists and designers both help people to envision alternative futures, and explore different paths they might need to take, based on particular dilemmas. In times of dramatic change, questions about what constitutes a good life or the right thing to do come to the fore, and helping people sort out what such a life or action might be like are key responsibilities that both design and ethics share. By facing the potentially catastrophic human and environmental consequences of our over population and over consumption of resources, design and ethics can prepare us for a different kind of future; one in which we can sustain ourselves, along with the other species with whom we need to share the planet, and the future generations for whom we need to steward what remains of it.

Some readers may find this book pessimistic, although I wrote it with the opposite temperament in mind. Design and ethics both seek to improve the world, to create better physical environments or fairer interpersonal ones, and so give us hope (which is also the hope of this book), however it may seem otherwise to some. This inherent optimism of design and ethics also comes from confronting the worst conduct and the greatest conflicts, out of which the best solutions arise. When we avoid doing so, design and ethics can become, instead, a kind of cover-up, a way of constructing façades or

creating justifications for self-destructive behavior. Pessimists are never disappointed, as the saying goes, but neither are optimists if we don't shrink from our duty to deal with the most-dire situations we face. In this, the following chapters will definitely not disappoint.

Other readers may find the book not prescriptive enough, with too few specifics about what we can each do tomorrow to create more sustainable, socially just environments. But no one person can say what that should be. The more creative and diverse the solutions we can all generate, the more likely life on this planet will thrive in the centuries ahead. About the only prescription you will find in the book is that, whatever the specific solutions may be, they will almost all involve much less consumption of finite resources and much more use of renewable energy and biodegradable material, along with a vast increase in our imagination, creativity, insight, and knowledge and a much greater respect for one of the most under-appreciated resources of all: human wisdom. If there is one thing that has brought us to the edge of environmental collapse, it has been our hubris, and one thing that will keep us from going completely over that edge, will be our humility in the face of all that we don't know, cannot control, and have yet to learn from the millions of species that have evolved to live in sustainable ways, before we render them extinct.

Thomas Fisher

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Biography

Thomas Fisher is a Professor and Dean of the College of Design at the University of Minnesota. Educated at Cornell University in architecture and at Case Western Reserve University in intellectual history, he previously served as the Editorial Director of the Progressive Architecture magazine in Stamford, Connecticut. He has lectured or juried at many schools and professional societies, and has published two dozen book chapters and over 250 major articles. He has also published three books: *In the Scheme of Things, Alternative Thinking on the Practice of Architecture*; *Salmela Architect*; and *Lake|Flato Buildings and Landscapes.*

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Chapter 1

Our collapsing global bridge

I write these words a few days after a highway bridge a few miles from my house fell unexpectedly into the Mississippi River, taking with it 100 vehicles, while killing 13 people and injuring over a hundred more. People who survived the collapse, passers-by who saw it, and nearby residents and students who heard it, all rushed to the aid of others, helping people out of the river and off of the collapsed structure. The rescuers did this without being asked and without expectation of reward, and the survivors of the collapse have

expressed their gratitude at the help they received and at their simply being alive, shrugging off the loss of their vehicles or other property into the river. The tragedy has attracted attention all over the world, in part because of the millions of people who travel over similarly high bridges every day and who are justifiably worried about their own safety. But the collapse of that bridge has also come to symbolize for many people the sense of vulnerability and uncertainty just below the surface of our lives right now. The whole superstructure of modern civilization, seemingly so stable and secure, has started to feel as shaky as that bridge just before it collapsed. We may think that there is no way our civilization, with all of its technological might, could crumble, but as we have learned from that Mississippi River bridge, dismissing the possibility of collapse and not paying attention to signs of distress is the surest route to failure.

Bridge structures can fail for many reasons, but once the stresses in a structure pass a certain point, they often increase exponentially to the point where fracture or collapse occurs. Like a bridge, our planet has begun to show similar strain, and the stresses on it have begun to increase exponentially. We have seen the exponential growth of the human population, which has gone from 2.5 billion people in 1950 to an expected 9.3 billion people by 2050, with the greatest increase expected in the last decade of that 100-year period[1]. We have also seen an exponential growth in the gap between wealth and poverty, with 2 per cent of the global population now controlling 50 per cent of household wealth and with 50 per cent of the population controlling barely 1 per cent of it[2]. Another exponential curve has occurred in the accumulation of carbon dioxide in the atmosphere, going from just over 300 parts per million (p.p.m.) in 1950 to an expected 500 p.p.m. by 2050, again with the most rapid rise occurring in the final few decades[3]. And growth in demand for oil has also grown exponentially, with world demand in 2001 at around 76 million barrels per day (Mbd) having grown at a rate of 8 Mbd over three years, leading to an expected 94 Mbd by 2008, outstripping the maximum annual production capacity of the planet[4].

It is hard to predict what effect this exponential growth will have on the stability of our civilization or the habitability of our planet, but it has become clear to most observers that we cannot continue moving at these exponential rates without some very unpleasant results. The biologist David Suzuki described exponential growth recently to the annual convention of the American Institute of Architects: Imagine, he said, that you had a vial in

which there was a nutrient and one microbe, whose progeny divided once every minute, doubling the population every time. At 60 minutes, the microbes will have filled the vial and consumed all their food, but at 59 minutes, the vial is only half full of microbes and half of the food remains. Indeed, at 57 minutes, with only a few minutes left, the vile is mostly empty, only 1/8 full of microbes and with 7/8 of the food still there. Were the microbes aware of their situation, said Suzuki, at the 59th minute they might say to themselves that there is plenty of food and plenty of room in the vial and that there was nothing to worry about. Many microbes might even mock those few who seemed alarmed or said that something needed to be done. Then, in the next minute, the vial fills, the food disappears, and the microbes die. 'We humans', warned Suzuki, 'are in our 59th minute'[5].

The metaphor of the 59th minute translates into about 50 years, which is about how long the environmental historian Jared Diamond, in his book *Collapse*, estimates that we have before we see the effects of the dramatic declines in natural habitats, fish populations, biological diversity, and farmable soil, before we begin to reach a ceiling on inexpensive fossil fuels, accessible fresh water, and plant growth per acre, and before we start to be overcome by toxic chemicals in the air and water, invasive plant species devastating ecosystems, ozone-depleting atmospheric gases, rapidly growing human populations, and unsustainable levels of consumption[6]. We do not know which factor will prove most critical or cause the greatest disruption, but Diamond reminds us that addressing a few of these dozen problems will not be enough. Any one of the factors on Diamond's list could trigger a tectonic shift in human affairs.

It is not hard to see what such a shift might entail. A global pandemic, in a matter of weeks, could kill hundreds of millions of unsuspecting people, with the first to feel its effects being those who live in the largest cities or who travel the most[7]. Intense tropical storms like Katrina, combined with an overall rise in sea levels, could flood seaside cities and heavily populated coastal areas, turning as many as 200 million people into environmental refugees[8]. Or persistent drought, mixed with growing populations in areas without readily available fresh water, could cause famine and dehydration affecting hundreds of millions of people worldwide[9]. And the on-going turmoil in the Middle East, along with hostile oil-producing countries elsewhere in the world, could lead to a sudden and dramatic decrease in the availability of oil, which in turn would send prices soaring and economies into depression[10].

Some might rightly observe that we have faced such problems before. We have survived pandemics, dealt with storms and droughts, and undergone transitions in our fuel sources. The difference is that the problems now exist at a global, rather than a local or even national scale, and they have come at a time when we also have a much larger population, a more interconnected economy, and an already highly stressed natural environment – all giving us much less room for error. Any of these events could happen suddenly and unexpectedly, and any of them would, in turn, affect us all. While we would no doubt muddle through, the threats to human civilization have never been greater and never been at a global scale, as they are now. While individual societies and cultures have collapsed, usually because of some combination of an over-taxed natural environment, a rapidly growing population, and a short-sighted political culture, we may be seeing, for the first time, a possible worldwide collapse caused by those and other factors.

No one likes to contemplate such things. It is human nature to want to keep the windows up, the air-conditioning on, and the radio blasting as we cruise across our global bridge, telling ourselves that we are safe and secure and hoping that we can get across before the whole thing gives way. But we have to resist our great skill of self-denial. We have a moral responsibility to ourselves, as well as to every other person and species on this planet, to do everything we can, from this moment on, to change our behaviour in ways that will keep the social and environmental structure supporting our civilization from collapsing. There are, of course, many who have already advocated that position and many more who have begun working to make it happen. This book has another purpose: to talk about the skills we will need if a collapse occurs. As happened with that bridge over the Mississippi, the people who survived drew upon skills that were both practical and ethical in nature. They got out of their crushed vehicles or swam to safety, using their knowledge of the designed environment – how to escape a submerged car, for example – to save themselves. And many of those who were unharmed went to the aid of others, exhibiting a sense of duty, as well as virtues such as compassion and courage, that come from the habit of being ethical, of helping others as we would want them to help us were we in their position.

Think of this book, then, as a kind of survival guide for a global collapse, a collapse that I hope we will avoid, but one that we need to prepare for in case we can't. The book addresses the two main areas that I believe will be most critical if things start to fall apart: ethics and design. Ethics offers us tools in

dealing, psychologically, with the hardships that will ensue, and design gives us the means to address our physical needs when many of the supports we now depend on for that may be gone. A post-collapse world will look and be very different from our own, with many fewer material comforts and physical resources at our disposal. But, if we prepare properly for it, it can also offer a higher quality of life, one in which the inner riches of an ethical life can compensate for the decline in material resources. Such a topic may sound grim to some, but I see it as just the opposite. The best way to address a major threat is to be ready for it. Indeed, emergency preparedness may well become a primary part of what ethicists and designers do: helping people envision alternative futures that take into account all possible threats and that show how we can construct environments that enable us to live better lives.

That role all may seem far removed from the practices of designers, most of whom remain busy creating and making the things we use and inhabit daily. Indeed, designers, unintentionally, often contribute to the very problems that may lead to a collapse. Architects, for example, design only about 2–5 per cent of all that gets built and most of that for the wealthiest individuals, organizations, and governments, while remaining largely uninvolved in the 'design for the other 90 per cent' who need shelter and the creative ideas of the design community far more than the wealthy[11]. Architects, engineers, and designers have also created the very the superstructures and infrastructure – the skyscrapers, bridges, and tunnels – that have become the unintentional symbols of global inequities and the intentional targets of terrorists as a result[12]. Meanwhile, the designed environment contributes most of the human-generated greenhouse gases, almost 50 per cent of which comes from the construction and operation of buildings, and over 25 per cent more from the operation of cars and other vehicles[13]. And the design and planning of many cities and suburbs as low-density developments has forced millions of people to become increasingly dependent upon a finite supply of fossil fuel[14].

If design is part of the problem, so too can it become part of the solution. The interest in sustainability and the 'greening' of products and environments is an indication of the design community's readiness for change, although there remains the dilemma of our tinkering around the edges of a problem within a still-resistant context. More people use 'green' products, but so too do more products end up in landfills, and more companies have 'greened' their buildings, but most employees still drive long distances to work. The real changes will come with a rethinking of what we really need and how we should

live – questions that can have a profound effect not only on our use of natural resources, but also on the quality of our own lives. Design offers a process with which to tackle such questions, a way of helping people sort through the pros and cons of different scenarios and evaluate the strengths and weakness of alternative future paths – positioning designers to take on that larger role and those broader questions is one of the subtexts in this book.

This book has three interwoven parts, each offering a different set of tools we will need if a global collapse occurs. The following chapters explore the psychological survival skills that ethics has to offer. While we typically think of ethics as an aid in deciding right from wrong and in determining what actions we should take in a conflicted situation, the history of ethics also provides us with a wealth of strategies to help us deal with the setbacks and disappointments in our lives, showing how attending to others in need is, in fact, in our best interest. In each chapter, related design principles offer thoughts of how ethical ideas about what we *should* do might translate into design ideas of what we *could* do. The principles remain broad in scope in order to encourage as wide a range as possible of creative interpretations. There may be few eras in human history in which we have needed more fresh thinking than we do now, and the design principles are offered in the hope of spurring new ideas. Each chapter also has several short essays about the kinds of places we all encounter in our daily lives. These pieces try to suggest what a more sustainable and equitable future might actually be like, and how our ordinary environment might change as a result. The future we face may not look that different from today, although certain aspects of our daily context may have a very different function or cease having a function at all. But there will undoubtedly be a profound change in the many details of our lives as we end up living in ways that might be closer to the way our ancestors did before cheap oil and global trade created the illusion that everything should be available to us all the time.

One of the areas of greatest resistance to the ideas in this book may come from those who believe that the marketplace can and will solve everything and that we only need to unleash its power and let the 'invisible hand' work its wonders. There is no question that the solutions to the challenges we face will involve the marketplace; humans have always traded goods and services in order to live and that may loom ever larger in a future in which meeting our needs may become harder than it is now. But whether the global economy will continue to grow and material prosperity will continue to expand is another

matter, especially if we see a collapse in some of the key supports that have allowed that to happen in the past. Adam Smith, the 'father' of capitalism, has a lot to offer as we think about what a more sustainable and equitable marketplace might be like.

In addition to writing capitalism's foundational text, *The Wealth of Nations*, Smith, a professor of moral philosophy, authored another, less-frequently read book – *A Theory of Moral Sentiments* – that makes the connection between ethics and economics in ways that will be quite useful if we have a collapse of some sort in the future[15]. One of the first things we might lose in such a scenario is some amount of material wealth, which Smith puts in perspective. 'Power and riches appear then to be, what they are, enormous... machines contrived to produce a few trifling conveniences to the body... which must be kept in order with the most anxious attention... which threatens every moment to overwhelm the person that dwells in them'. Smith thought that riches not only create anxiety, but they also distract us from virtues such as 'humanity, justice, generosity, and public spirit... the qualities most useful to others', as he said. Smith also saw the trap of our seeking happiness through having more possessions: 'In ease of body and peace of mind, all the different ranks of life are nearly upon a level, and the beggar, who suns himself by the side of the highway, possesses that security which kings are fighting for'.

It may come as a surprise to find the father of capitalism writing about wealth in this way, but he saw a paradox at the heart of capitalism that we will need to keep in mind. Near the beginning of *The Wealth of Nations*, Smith describes what has been known as the paradox of value: 'The things which have the greatest value in use have frequently little or no value in exchange; and, on the contrary, those which have the greatest value in exchange have frequently little or no value in use. Nothing is more useful than water, but it will purchase scarce anything; scarce anything can be had in exchange for it. A diamond, on the contrary, has scarce any value in use, but a very great quantity of other goods may frequently be had in exchange for it'[16].

There were two dominant responses to this paradox in the subsequent centuries. On one hand, Karl Marx and other advocates of communism sought to eliminate the paradox by envisioning a society that distributed necessities with the greatest use value, while controlling luxuries that have almost purely exchange value. That functionalist approach to the problem had the advantage of being fair, but it made the mistake, like most functionalist design of the

twentieth century, of assuming that people care only about usefulness. On the other hand, free-market advocates took Smith's paradox in the opposite direction, wanting to convert almost everything into an exchangeable commodity, including water itself, as we have seen with bottled water. This creates the dilemma of what to do when there are no markets in which to exchange, or when the people who most need something – like the hundreds of millions of people with little or no access to fresh water – don't have the means to purchase it.

Neither the centrally controlled markets of communism nor the loosely regulated free markets of capitalism may be of much help if the supports for a global economic system collapse. Both communism and capitalism, for all of their differences, have had the effect of concentrating power and expertise in the hands of relatively few people, whether they be government bureaucrats or private sector professionals. This, in turn, has made the public dependent upon the expertise of specialists and led to what Ivan Illich called the 'disabling' of ordinary people[17]. That dependence upon experts may make sense in a highly interdependent economy, but it becomes a definite disadvantage if we end up, as James Howard Kunstler envisions in *The Long Emergency*, being forced, because of the disappearance of cheap oil, to return to local economies and more self-sufficient communities[18]. In such settings, we will need to relearn the useful skills and reinvigorate the local and regional markets that our ancestors once had.

Ironically, Adam Smith's ideas may become even more important as we adjust to such changes. While communists focused on use value, and capitalists on exchange value, we might, instead, focus on the ethical values implicit in what Smith said. According to Smith, we may value diamonds more than water, even though we need water and don't need diamonds. But in light of Smith's largely Stoic approach to life, another response to that paradox is to learn to need as little of either as possible. That interpretation is implicit in Smith's example of the beggar sunning himself by the highway, possessing the security that kings fight for. The beggar's wealth comes not in having a lot of possessions, but in needing so little and having so little to lose: he needs water, but only so much as he requires for his body to keep functioning, and he doesn't need diamonds, however much kings may desire them. Smith's paradox of value, in that sense, involves not just the conflict between use and exchange value, but also the more fundamental conflict between what we need and desire, between moral value and monetary value.

This is not a trifling distinction. Smith attached ethical meaning to the very idea of the invisible hand of the marketplace – the belief in which guides so many people in their faith that capitalism can resolve almost any problem. 'The rich only select from the heap what is most precious and agreeable', wrote Smith. 'They consume little more than the poor, and in spite of their natural selfishness and rapacity... though the sole end which they propose from the labours of all the thousands whom they employ, be the gratification of their own vain and insatiable desires, they divide with the poor the produce of all their improvements. They are led by an invisible hand to make nearly the same distribution of the necessaries of life'. In statements like this, Smith clearly viewed the invisible hand of the marketplace as a mechanism by which the rich would 'divide with the poor the produce' of their work, and 'make nearly the same distribution of the necessaries of life', since the rich, he thought, can 'consume little more than the poor'.

In light of what we know now about the ability of the rich to consume far more than the poor in luxury goods and services, Smith's assumption about the relative equality of consumption may seem naïve. But he is talking here about necessities, not luxuries. At the most basic level of food, shelter, and clothing, human needs *are* roughly the same, and while some people might eat somewhat more or less food, need a bit more or less shelter, or slightly larger or smaller clothing, the differences in what we need are minor. For Smith the invisible hand of the marketplace becomes not a way to enrich a few at the expense of the many, but rather as a way to ensure that as many people as possible benefit from 'nearly the same distribution of the necessaries of life' as a result of the wealth that manufacture and trade help create.

That the global marketplace has made a few people very rich while the majority of people have made relatively little economic progress has partly to do with scale. Smith believed that moral sentiment – the powerful effect of people seeking to approval of others – could keep the potential excesses of the rich in check and pressure them to spread their wealth widely. But moral sentiment depends upon people of various economic levels living in and associating with each other in a close community. In small towns such as Kirkcaldy, Scotland, where Smith grew up, or even in modest-sized cities such as eighteenth century Glasgow, where he taught, there was enough interaction of rich and poor to make moral sentiments a potentially powerful counterweight to the 'natural selfishness and rapacity... [and] vain and insatiable desires' that Smith saw as characteristic of the rich.

But in a global economy, in which the wealthy need never know or even see people not of their same economic status, there is little leverage that moral sentiments can provide. Indeed, in the economically segregated communities in which increasing numbers of us reside, wealth becomes entirely relative to one's context, to the point where even the merely wealthy can feel deprived living next to the very wealthy. If we see a return to more local economies and communities in the wake of a global collapse, Smith's original idea of capitalism responding to moral sentiment might once again work, but the disapproval of neighbours can only go so far.

The other check on 'natural selfishness and rapacity' of rich, thought Smith, was the development of a virtuous character. Smith was quite dismissive of the trappings of wealth. 'Wealth and greatness are mere trinkets of frivolous utility, no more adapted for procuring ease of body or tranquility of mind than the tweezer-cases of the lover of toys'. What Smith admired in people was not the amount of their material possessions, but the extent to which they possessed virtues such as frugality, benevolence, and self-command. Smith thought that by being frugal, we would always have enough; by being benevolent, that other people would have enough; and through self-command, that we could all find happiness in whatever we have. He was right, and we would all do well to keep that in mind in a future when there may not be enough to go around and maybe much less than what many of us are used to.

To use Smith's language, we will need to develop a moral sentiment against the natural selfishness of people in periods of decline to grab all that the necessaries of life that they can. The challenge, if a collapse comes, will be to move away from an emphasis on self-interest, which only feeds the desire to hoard, and towards to one of sharing with and even self-sacrifice for the good of the whole. Smith's ethics suggest that such a shift will take a transformation in how we see wealth. Money in a time of crisis can become worthless; after all, rich and poor alike went down with the bridge into the Mississippi and no amount of power or influence could save one person over another when the collapse comes. Moreover, wealth can be a real handicap if it weakens our ability to deal with adversity or live without luxury. When the bridge collapsed, those who survived did so by acting on their own, without expecting others to help them.

It is one thing to have faith in the marketplace and quite another to have blind faith, to believe that it will solve all problems without our having to make any

fundamental changes in our lives. As Einstein once observed, 'We cannot solve our problems with the same thinking we used when we created them', and that is true of our political economy as it is of particle physics. Many of the environmental and demographic challenges we now face have arisen from our thinking about the invisible hand of the marketplace in a particular way, generating incredible wealth for a relatively small percentage of the world's population, while treating the natural world as a free store and open sewer. We have, in other words, let the economic side of Smith's thinking almost completely eclipse his ethics.

If we are to have a hope of addressing the environmental and humanitarian problems Jared Diamond lists, and any hope of surviving a collapse if it comes, we need to revisit Smith's work and recognize that we now need to be 'led by an invisible hand to make nearly the same distribution of the necessaries of life' among all people and across all species. Smith showed us how capitalism can be ethical, and we now need to apply his theory of moral sentiments on a global scale, to help the greatest number of others as possible, however much this reins in the 'vain and insatiable desires' of a few.

The Stoic sensibility of Smith – his advocacy of frugality and thrift – applies not only to economics, but also to the physical world we will need to construct for ourselves if a collapse occurs. Not that Smith lets designers off easy; he could be just as hard on the architects of the rich as he was on the rich themselves. 'When we visit the palaces of the great,' he wrote, 'we cannot help conceiving the satisfaction we should enjoy if we ourselves were the master, and we possessed so much artful and ingeniously contrived accommodation…but how many people ruin themselves by laying out money on trinkets of frivolous utility?' And yet, while Smith clearly didn't like the palaces of the great, he did seem to recognize the importance design plays in the working of moral sentiment.

We have already seen this in how the scale of our built environment and the proximity of people of different economic levels help create contexts in which sentiment can affect our actions. But Smith also emphasized the need for design to focus on serving people and not on the beauty and order of things as ends in themselves. As Smith put it, 'from a certain love of art and contrivance, we sometimes seem to value the means more than the end, and to be eager to promote the happiness of our fellow-creatures, rather from a view to perfect and improve a certain beautiful and orderly system, than from any immediate sense or feeling of what they either suffer or enjoy'.

Designers fail, in other words, when we either get too involved in making objects or environments of 'frivolous utility', far beyond what anyone really needs, or when we get too wrapped up in producing a 'beautiful and orderly system' without attending enough to the purposes we want it to serve. This criticism of design when it veers too far towards either frivolity or formalism, might be levelled at the design fields themselves. The design community has structured practice in such a way that we mainly serve the wealthiest individuals, institutions, corporations, or communities, even though those who need our services the most – the billions of poor who are ill-housed and badly served by basic infrastructure – have little or no access to us. From the perspective of many people, the design professions have themselves become a kind of frivolity, since our work affects relatively few of the global population. At the same time, so much of the discourse about design we have among ourselves revolves around formal issues, about the beauty or order of something rather than about whether it worked, who it served, or what difference, if any, it made. In Smith's words, we too often 'seem to value the means more than the end' and too rarely ask of those who use our work 'what they either suffer or enjoy'.

Nor is this a question to ask only of other humans. In his 1989 book *The End of Nature*, Bill McKibben argued that we have reached a point in our history where no part of the planet remains unaffected by human activity, which is what he meant by nature as something separate from us having come to an end[19]. We have seen McKibben's claim reinforced over and over again as we have witnessed ever more rapid rates of global warming, polar ice cap melting, rain forest shrinkage, and species extinction. Since the publication of that book, global climate change has gone from being an idea mainly discussed in the scientific community to one of broad public and political interest. However, as McKibben himself worried in an essay fifteen years after the book first came out, most of us still don't seem worried enough about the catastrophic effects of these environmental changes, perhaps because they remain in the minds of many a matter of the health of plants and animals, and not enough about our own ability to thrive as a civilization or survive as a species[20].

While we need to do everything possible to reduce the negative effects of our activities on the planet, it is unlikely, as McKibben notes, that we will ever return to a time when human activity doesn't have a global impact. Even with shrinkage of our environmental footprint as a species, the exponential growth

in our numbers means that we will continue to tax the resources of the earth in ways that affect every other species and every corner of the world. As a result, we have reached the point in our history not only when we have come to the end of nature, but when we have turned the entire globe, unintentionally, into a designed environment, into something over which we now control and have responsibility for it. Congratulations! We are all now the proud owners of planet earth.

That may sound megalomaniacal, and indeed it would be, as well as tragic, if we do as poor a job designing at a global scale as we have at a local one. How many times have we seen land developers take down most of the trees on a property and deform the landscape into what the regulations allow, leaving behind a much degraded form of the site's former self? They may do so out of the best of intentions, out of a desire to 'improve' a piece of land, but they end up producing a monotonous monoculture of mostly turf grass that lays like a wet blanket over the once vital and diverse ecosystems around our cities and towns. Poorly done, design overly orders things. But when well done, design can be a way of enhancing the natural world and enabling us to become the good stewards of our planet that most of us probably want to be if we knew how. The place to begin is for us to stop acting as if there exists a separation between the natural and the artificial, between us and nature. We *are* nature, and those who exploit or harm it exploit and harm all of us. At the same time, the more we care for nature as it has evolved in all of its diversity, the more care we give to ourselves. Now that we have come, as McKibben says, to the end of nature, there is nothing more in our self-interest than looking after the interests of all of the others species of which we are a part.

Once we understand ourselves as nature, we can begin to think properly about our planetary design problem. It is a design *problem* because much of the toxic waste and environmental damage we have wrought at a global scale over the last century has arisen from a lot of very bad design of objects, structures, and systems that did not take into account the energy they needed, the waste they generated, or the durability they needed to have. If we, as a species, are to succeed as planetary designers, we need to approach the problem as designers would, breaking its scale down in order to grasp what might otherwise be an overwhelming task.

Several years ago, an email entitled 'The Global Village' circulated through cyberspace, envisioning the global population as a village of 100 people[21].

That reduction of the planet down to the size of a village had the advantage of highlighting our often self-defeating behaviour, pointing out, for example, that we spend more on weapons than on education or healthcare, and that we are rapidly wiping out our forests and polluting the little readily available fresh water we have. But the thought experiment of the globe as a village also helps us conceive of our social and environmental problems at a scale that makes them seem less daunting or incomprehensible. It also suggested that we rethink the world in ways that both accept our real diversity and acknowledge the fact that we are, ultimately, all in this together. Would any of us want to live in a village of 100 people if two people had half of all the wealth and 50 people just 1 per cent of it, if 80 out of 100 had substandard housing and 70 out of 100 couldn't read, and if half of the population was malnourished and only one person had a college education? Wouldn't the wealthier residents in the village want to do something to help their neighbours have enough to live at least a decent life? As Adam Smith knew, there is nothing like proximity to a problem to reveal the rigidity of our ideologies and return us, once again, to having moral sentiment.

If we can see what needs to be done and even how we might do it at a village scale, why is it so difficult to do so at a planetary one? It has a lot to do with the artificial scarcities that get created and that we then convince ourselves are real. As the economist Folke Dovring puts it, 'Riches can be embarrassing. Unexpected abundance is often treated as a scourge worse than the scarcity we are all accustomed to... Economics is the "dismal science" of how to live with scarcity. Whenever scarcity is relaxed, economics and business tend to come together to introduce it anew. If scarcity is not there to begin with, it is invented on purpose, by creating redundancies. Scarcity is not only the reason for economics; it is also its main steering force. Things in abundance, such as air and sunshine, have no price and are not traded on markets. They belong to no one, and they also support no economic doctrine – as long as they remain abundant'[22]. The traditional supply and demand curves of economics arise out of this tension between scarcity and abundance. We try to have supplies of goods and services that nearly meet, but never exceed the demand. An abundance of supply and scarcity of demand cause prices to fall and business to falter, just as too little supply for the demand presents the greatest economic opportunities.

Design plays in a key role in this, by keeping demand out ahead of supply through the creation of new models, new styles, new desires, as well as by

reducing the longevity of the supply through planned obsolescence or simply poor detailing and construction. That creation of 'artificial' scarcity through design does harm for at least two reasons. First, it leads us to dispose of goods prematurely, along with the finite resources and embodied energy they contain. The construction and demolition waste stream alone is now over 100 million tonnes annually, having exceeded the landfill space available in many parts of the world. This creation of 'false' scarcity diverts our attention from all of the 'real' scarcities that exist in the world. As the psychologist Richard Farson wrote as he was stepping down as the public member of the American Institute of Architects board: 'I sometimes wonder what an American architect would say if approached by the leader of China seeking his or her help for the 800 million ill-housed, struggling Chinese... "each home should be custom designed, the architect should be an integral part of the process for each structure, from beginning to end, carefully surveying the site, designing a structure that is particularly suited for that site, working intensively with the client to understand that individual's special needs, making sure that the contractors are performing, and that the project is completed on budget...We don't condone selling stock plans. But we could bring a thousand architects to work with you." The leader would shake his head, concluding that such a program, even if China could afford it, would take 800 years'[23]. The artificial scarcities we create as designers through our own focus on custom work, in other words, present ethical dilemmas and human inequities of the most profound kind.

Such ethical dilemmas demand that designers re-examine our own methods and how our work gets used in ways that we may not intend. The computer scientist Herbert Simon defined design in the book, *The Sciences of the Artificial*, as any action that transforms an existing condition into a preferred one, and the design community itself needs to design our own practices in terms of what we would prefer[24]. If our work is used to create scarcity – exclusivity, rarity – when what many of us want to do is to create abundance – goods that build community, an enhanced public realm – then we need to rethink what we are doing and how we do it. All design happens within boundaries and according to the criteria we set for ourselves, criteria that have to do mostly with the system meeting our needs and doing so in an efficient and cost-effective way. But Simon's definition forces us to ask the ethical question: design transforms an existing condition into one preferred *by whom?* Is it enough to design something preferred by the client when that creates a condition not at all preferred by other species or

future generations? And is it even in the best interest of the client when a design has adverse effects on others or leads to unintended and unwanted consequences?

Consider the construction industry. While it addresses the essential human need for shelter, that industry, through building materials manufacturing, construction, and operations, consumes 16 per cent of the available fresh water annually, 40 per cent of the world's total energy use, about one-third of the emissions of heat-trapping carbon dioxide from fossil fuel burning, two-fifths of acid-rain-causing sulphur-dioxide and nitrogen oxides, and 40 per cent of the total material flow in the global economy[25]. At the same time construction waste constitutes between one-quarter and one-third of all US landfills, of which 50 per cent is paper waste, 10 per cent plastic, 13 per cent organic waste, 6 per cent metal, 1 per cent glass, and 20 per cent miscellaneous debris[26]. We might decide that such impacts are worth it, given the importance of what we get in return: the places in which we live and work, the settings in which we learn and play, and the linkages over which we travel and communicate. But we can no longer ignore the question of where the materials we use come from and where they end up once we no longer have a need for them. In a world entirely affected by us and thus entirely our responsibility, there is no other place that we are not also accountable for. The 'preferred condition' that design seeks now includes, whether we acknowledge it or not, all of the material and energy flows related to what we make, as well as all of the effects our actions have on others – not just the direct users and inhabitants of what we do, but everyone and everything affected by what we create, operate, and dispose of.

This exponential growth in the responsibilities and the domain of designers may seem idealistic, if not impossible to factor into the design process. What we often forget, however, is the leverage designers have that we too rarely use for the good. We select, order, specify, and generally consume huge amounts of materials and products, evident in the large exhibitions that occur every year at design conventions, with manufacturers filling enormous halls with their wares in hopes of getting designers attention. On one hand, such shows demonstrate the significant impact design has in terms of the use of energy and resources. On the other hand, these product exhibitions reveal the real potential the design community has to reform the ways in which we make, use, and dispose of goods – simply through the questions we ask and the expectations we have of what we select. This has already begun to happen

as designers have demanded more environmental-impact information from manufacturers, some of whom have made major changes to their products and processes. Many others have done much less, 'green washing' their existing methods and materials to make them seem more sustainable than they really are. But all of this is just scratching the surface of what designers can do to transform the way in which we think about our relationship to and responsibility for the rest of the planet.

What if, for example, designers not only asked for the energy needed to manufacture or operate a product, but also the energy used by all of the suppliers of the constituent materials to mine, fabricate, and ship what they produced? What if the questions went beyond energy use to ask about the way in which everyone along the supply chain treated their workers and 'greened' their own facilities? And what if the questions also asked for information on the waste policies of companies and on the disposal procedures built into their products? Can their products be easily dismantled and recycled or returned to their manufacturers for reconditioning and reuse? And how long will it take for their products and constituent materials to decompose and biodegrade? Such questions may sound presumptive, but they are no more so than the hundreds of other formal and functional questions designers ask all the time of manufacturers, who in turn must respond if they are to stay in business. Nor should such questions stop with designers; retailers and consumers need to ask the same of all whom they buy from, for it is no longer enough to make something functional, cost-effective, durable, and visually pleasing. If everything we use and inhabit isn't also environmentally friendly and socially responsible, it constitutes not just bad design, but a bad investment.

The investment issue is the one area in which those who resist asking such questions often turn to. In terms of price, for example, many 'green' products and services seem more expensive and thus something we cannot afford. That, however, always occurs as we make a transition from one technology or paradigm to another, for once enough designers see such questioning as part of our professional duty and once environmental and social responsibility becomes an expectation of everything we select and specify, competition will keep costs in line. At the same time, the perceived high price of such products discounts the myriad hidden costs of our not taking larger social and environmental factors into account – costs that return to us as a result of climate change, fuel price increases, fresh water restrictions,

institutionalized poverty and social unrest, among others. Having adequate information would eventually affect the decisions we make, as Plato argued when claiming that unethical actions stem from ignorance. The leverage we all have – designers and contractors, fabricators and suppliers, clients and consumers, wholesalers and retailers – to change our unsustainable practices simply by asking the right questions and making the right decisions based on them is extraordinary. We have only to use it.

This may seem to go against the golden rule of all designers, as my architect-grandfather used to call it, which is: 'Get the job. Get the job. Get the job'. If a designer seems too concerned about matters not directly related to a client's needs, won't clients go elsewhere, to another design firm that will do exactly what they are asked to do, without raising what some might see as extraneous issues? That, of course, depends on the client. Some could care less about anything else other than their idea, while others want professional help to see alternatives and opportunities beyond what they have thought about. And what may seem extraneous from one perspective can, from another perspective, differentiate a firm from all the rest. Having been on a number of design-selection committees, I have seen, from the client-side of the table, how many high-quality firms end up looking and sounding alike by playing to the expectations of the committee, while some firms that have a clear position that the committee hadn't thought about often stand out among the competition and are more likely to get selected. This is particularly true when it comes to factors other than aesthetics. From my experience, most lay people have little or no knowledge of what constitutes good design beyond what they subjectively like, and so most, especially for non-residential commissions, seek other, more objective reasons to select one firm over others. Ethical concerns about the good – the good of an organization, of customers or users, of a community, of the larger environment – are what I have seen more than once help a design firm stand out in a selection process and 'get the job'.

The delicate balance here involves weighing the specific needs of a project with those of the larger context – the physical, economic, political, social, and ethical environment – in which the project exists. Each project differs in terms of where this balance lies, but the mistake some designers make is to confuse service with being servile, with doing exactly what a client tells them to do without speaking out for what their professional expertise and experience tells them is the right thing to do. We wouldn't go to physicians who did only

what we told them we thought needed doing; we expect our doctors to do what current knowledge determines is best in a given situation, however much we might not want the procedure or like the prognosis. Professions serve best when considering a particular case within the broadest perspective of what it means, what it demands, and what other implications it has. Fortunately, taking a wide view comes naturally to most designers, since the design process involves an expansive investigation of the factors involved in a given situation and a creative exploration of alternative solutions in order to come up with a final product that meets the most needs in the most elegant way.

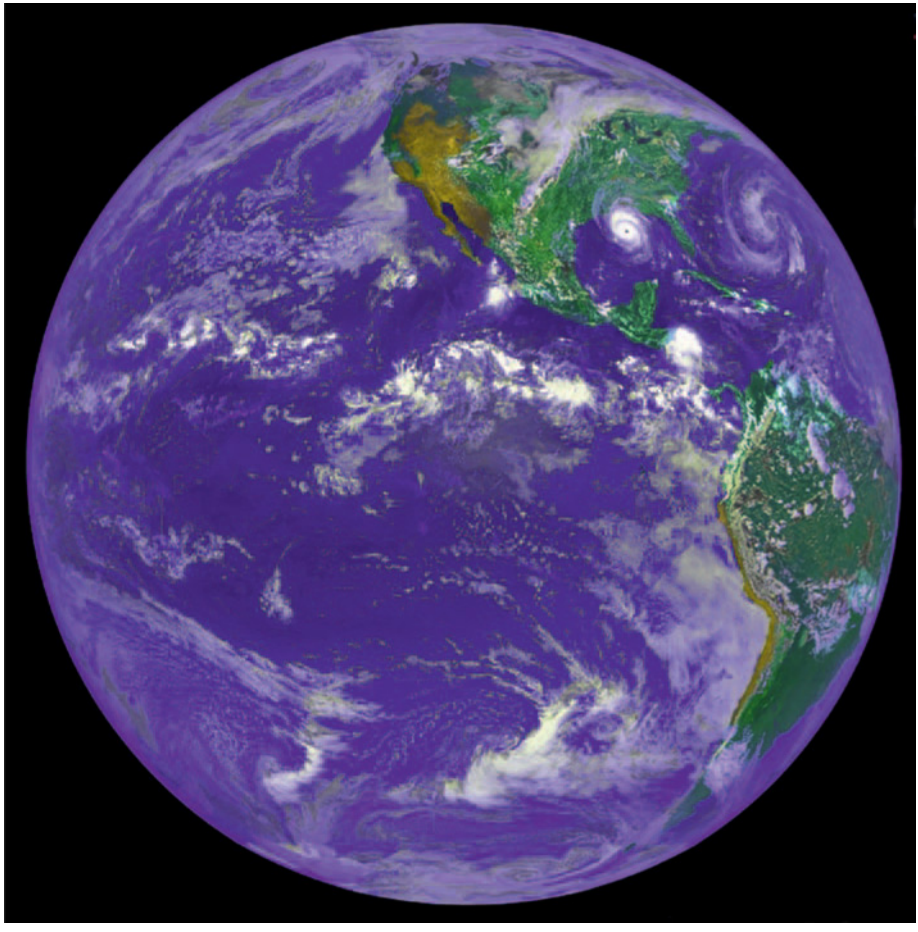
The challenge designers face, when engaging in a value-creating process, is dealing with clients, communities, and consumers who sometimes do not understand this way of working and who see creative exploration as a waste of time or money. But here is where the ethical turn in design can reposition the field in eyes of many people. The old tension between pragmatics and aesthetics – between the client who just wants something that works, and the designer who also wants something that inspires – takes on a new twist when what most inspires us is also what works best for the greatest number of those affected by it. The frequently cited fact that both economics and ecology share the same Greek root word – ecos, meaning household – indicates the opportunity here of aligning the economist's management of our global household and the ecologist's study of it. Neither wants to see waste, neither wants to see value decline or deteriorate, neither wants to see the death of something many people depend on. At the same time, both want to accomplish the most with the least, and achieve the greatest benefit at the lowest cost. The ethical turn in design provides one way of linking what has, for too long, been viewed as opposing positions.

That is why ethics and design have such a critical role to play in the coming decades. While they may seem far removed from the work of environmental scientists or public-policy specialists, the real change will happen with a change in our thinking and in our actions on a daily basis. Ethics helps us to see the world from other vantage points, with the interests and values of others in mind, and to do what we know is right, regardless of the resistance to it, by taking the needs of the most vulnerable always into account. Meanwhile, design gives us the means to apply the knowledge and insights we gather from ethicists to the envisioning of alternative futures for ourselves,

while allaying the fears of those who don't like change or who cannot see anything other than what they have already experienced. Given the amount of change likely to occur in the coming decades, we need to start this design process now. The global bridge beneath us may not collapse for some time yet, but then again, as we saw over the Mississippi River, it could also go any minute now.

PLACES

Earth



We are all of us born in moral stupidity, taking the world as an udder to feed our supreme selves.

— George Eliot

The novelist George Eliot summarized, in that one sentence, most of what we need to change in ourselves and in our relationship to the world if we are to thrive in the future. We stand here, on this planet, circling a minor sun in a medium-sized galaxy, proud of our being the most intelligent of the animals. And yet, when we look around at the environment we have constructed for ourselves, we see the extent to which our scientific knowledge and technical ingenuity has served to cover up the moral stupidity, as Eliot called it, into which we are born and out of which our modern culture discourages us from growing.

No one likes being called stupid, but Eliot has in mind a particular kind of stupidity here. It comes from seeing the world as an 'udder to feed our supreme selves', as a set of resources for us to exploit as we see fit, for our own needs. To use the world in this way, of course, requires a great deal of intelligence, and therein lies the irony of Eliot's 'moral stupidity'. The world has more than its share of widely informed and well-intentioned people, but the more we know about facts divorced from their context or consequences, the less wise we seem to become.

Eliot's use of the word 'moral' has nothing to do with the connotations that term has acquired, the notion that a 'moral' person adheres to community standards mainly regarding sex. To focus on people's sexual behaviour while corporations and countries rape the planet is truly immoral. Nor does it mean that everything we do should have a moral purpose. As Goethe once said, 'The work of art may have a moral effect, but to demand moral purpose from the artist is to make him ruin his work'.

Instead, Eliot's use of the word 'moral' has to do with our stupidity about ecology and about ourselves as part of it. Everything else we do on this planet is meaningless if we so damage our life-support system that it becomes uninhabitable by us. While the idea of the human species not surviving may sound far-fetched, we should not be so self-assured. We may be the most intelligent of creatures, but we are also among the most vulnerable species on earth, requiring a great deal of material and energy just to support our basic needs of food, clothing, and shelter.

We may, in other words, sit high up on the hierarchy the historian Arthur Lovejoy called 'the great chain of being', but as a result of our height, we also have the farthest to fall and the most to lose from a collapse of the

environmental supports beneath us. Part of the problem we face comes from seeing ourselves in this hierarchical way, with the rest of nature beneath us. Lovejoy rightly criticized the great chain of being for being too rigid, and unable to account for either chance or change, but the underlying notion of the connectedness of all things remains valid. We might call it instead, 'the great web of being', of which we are just a small part.

The complexity of that great web makes it hard for us to see the effects of what we do, and so we tend to go along with what other people do, the blind leading the blind. From the vantage point of space, however, the consequences of that blindness have become clear enough, as we watch arctic ice melt and coastlines recede, hurricanes intensify and forests disappear. We all know this and we tell ourselves that, one of these days, we need to be a bit more environmentally aware. But doing harmful things more efficiently is hardly the answer; instead we need to realize that, in everything we do, there is but one thing we must keep in mind. To borrow from a recent political quip: it's the planet, stupid.

Air

> *As our soul, which is air, holds us together, so do breath and air surround the whole universe.*
>
> — Anaximenes

One of the best vantage points to understand the predicament we have created for ourselves is from the air. As a child, I used to love going to the airport, watching planes land and depart and wondering what it would be like to leave home myself someday. Now that I travel a lot as an adult, the airport has lost much of its magic, but I can appreciate it for another reason: how well it reminds us that our greatest technical feats and intellectual accomplishments often end up working against our ultimate best interests.

When it comes to human flight, few capabilities have been so liberating and so damaging at the same time. For most of human history, our ancestors wondered at flight, and for many centuries, they tried mostly unsuccessfully, to fly. Only since the early twentieth century – a millisecond in the history of

humankind – have we actually managed to fly, eventually over distances and at heights and speeds unimaginable before. We physically liberated ourselves from gravity and space, but at what price?

One answer lies at the airport. These facilities have become essential to our economy, and places of great anticipation, where the most unlikely people cross: from tourists to terrorists, business people to boyfriends. At the same time, they have become one of the major sources of pollution in most cities, and, while they provide the place from which most of us become airborne, they also foul the very air we fly through, breathe in, and depend on for life itself.

The pre-Socratic philosopher, Anaximenes, would have been perplexed by our behaviour. He argued that air is the universal presence that binds us all, without which life on earth would not exist, rain would not fall, plants would not grow, and animals could not survive. But instead of gaining a new appreciation of the air that we can now traverse, we seem to have taken it even more for granted, the great commons into which we can spew our greenhouse gases and particulate pollution, assuming that the air will somehow take it away.

And so here we sit, in the noxious and gaseous soup we have generated for ourselves to breathe. The astronomer Carl Sagan once noted in a class I took of his, that the earth's atmosphere is as thick as the coat of varnish on a basketball-size model of the planet, and while we think the wind will carry off our pollutants, they just come back around for all of us to breathe. The air knows no boundaries and respects no one's privileges, and so our atmosphere remains the earth's great leveler, something that if we persist in polluting it, may eventually level us all in one great asthmatic spell.

I wonder, of course, why I still fly. I know people so afraid of flying that they manage quite well in life without ever setting foot in a airplane, and maybe we should all fear flying for another reason, since there is no more intense carbon-spewing activity than that. I, like many people, cannot do my job without flying, and so I have little choice until carbon-taxes and jet-fuel prices make it so exorbitantly expensive that it ceases to be a viable way of travel, or until we develop non-polluting ways of flying – solar-powered super gliders, perhaps, that sail on the wind and follow the jet-stream.

Either way, this will change the airport in ways hard to imagine now. What if, instead of being places of stress and sources of pollution, airports returned

to what they once were: great fields near cities where the occasional plane might glide into, and where, the rest of the time, our imaginations might take off – where we might start to envision a more sane environment and a more sustainable existence, and begin to cultivate the moral intelligence to see that just because we can do something like fly jet-fuelled airplanes, that does not mean that we should.

Water

Freedom in a commons brings ruin to all.

— Garrett Hardin

Like the air, water seems so prevalent that why worry about it? I thought that myself until I saw a demonstration by a water scientist, who took a large beaker of water, representing all of the water on the earth, pour a small part the water into a tiny glass, representing all the fresh water on the planet, and then take a thimble full of water from the glass, representing the less than 1 per cent of fresh water readily available to us, not locked up in polar ice. That made the dilemma we face with water real in a way that I had never seen before. By 2025, about one-third of the world's population will lack access to clean water: an estimated 2.3 billion people. I am part of the generation that grew up hearing about nightmare scenarios of the world ending in nuclear winter, with atomic weapons turning the planet into a radioactive cinder, but it

may be just as likely that we go out with a whimper and not a bang, dying not from atomic-bomb tumours but from water-parched thirst.

Bottled water, often drawn from some far-off spring, encased in plastic bottles, and shipped or trucked huge distances, has come to epitomize the paradox of water. It may be one of the few commodities the poorest and the wealthiest of the world share, the former because bottled water is the only clean water source they have, and the latter because bottled water is only mobile water source they have. That bottled water usually costs more than the equivalent amount of petrol speaks volumes about the critical importance and relative scarcity of H_2O. It also raises questions about our turning something so essential to life into a private commodity. The ecologist Garrett Hardin's idea of 'the tragedy of the commons' applies here. When there is a commons – a 'free' resource that we all share – rational people will exploit it to their advantage, he argued, taking more than their share of it, appropriating part of it for personal use, and exhausting it as a result.

Hardin's observation leads in two directions, with some arguing that we need to eliminate the commons, by privatizing it so that no one can take advantage. The bottling and selling of water exemplifies this, turning a once common element – fresh water – into a commodity. The other side holds that we need to regulate access to the commons to prevent any one individual or group from taking advantage of or destroying it. Public utilities that control, regulate, and deliver clean water, represent this position. Neither addresses, though, the scale of the water shortages large parts of the world will face in the future, suggesting a more fundamental shift in our relationship to this liquid.

Hydrologists have identified 106 major watersheds around the world, and some day they may have more meaning and more political value to us than the national borders we now have. Such watershed nations would mostly spread out across the interiors of continents, with often only a finger of land touching the oceans at the points where their rivers flow to the sea. And unlike the nation states of the past, which clung to the coasts for purposes of sea-faring trade of resources, a watershed world would have countries stewarding their stores of fresh water, trading their liquid gold with the coastal areas that suffer from tiny watersheds and too much salt water.

What wonderful names such watery nations might have, perhaps identified by the major river systems that run through them: Limpopo and Zambezi in

Africa, Don and Oder in Europe, Fly and Ob in Asia, Chubut and Orinoco in South America, Nelson and Yaqui in North America. But these new nations might not be as exotic as they sound, since they would approximate the areas in which humans first settled, near water sources, along rivers, and by lakes. What once seemed primitive to us may come to seem the most sensible way of occupying the land, identifying with and controlling of boundaries of the watersheds without which we cannot live.

Fire

Lead is the oldest of the industrial poisons except carbon monoxide, which must have begun to take its toll soon after Prometheus made the gift of fire to man.

— Alice Hamilton

Fire used to mesmerize me when I would sit around campfires as a boy scout. Many decades later, fire seems compelling for different reasons, not for the dreamlike state it induces, but because of what it says about us, the only animal able to make and control fire – a skill that, as Prometheus discovered, can be both a benefit and a bane. Fire, of course, enables us to heat the buildings we inhabit, forge the objects we use, and fuel the vehicles we drive. Around fire gather people into families and communities, and without it, we would not have flourished, perhaps not even survived, as a species. But while we have benefited from the fire that the ancient Greeks thought Prometheus gave us, we have not always had his 'foresight', which is the literal meaning of his name.

Fire has allowed humans to have the power of the gods, and to live as the gods do. The history of technology has, in many ways, been the unfolding of that power, in which we have used fire and the things that fire enables us to make to reduce the difficulty or duration of our labour. In the past, that seemed like a good thing, of great benefit to our well-being and quality of life. But in recent decades, we have begun to see why Zeus punished Prometheus for giving us the fire that would entice us to act like gods. We now heat not just our homes and factories, but also the atmosphere and oceans to unhealthy levels. And we now use fire not just to make and distribute things, but also to eradicate rain forests and clear grassland in unsustainable ways. Fire without foresight is dangerous indeed.

Yet fire, properly seen, can also be the beginning of foresight. Of the four elements the ancient Greeks saw as making up the world, Heraclitus gave pre-eminence to fire as a metaphor for the constant flux and continual change he saw all around him. The dynamic form and destructive power of fire did more than alter the physical world; it epitomized the nature of reality. If all things are in flux, then there exists the possibility that ideas and customs and beliefs can change, that what has happened in the past need not determine what happens in the future, and that all ideas have to be judged according to their relevance right now. Intellectually, then, Heraclitus's idea liberates us from dogma or unquestioned belief, enabling us to see that what appears eternal or universal also changes.

The same applies to the social scale: our relations with other people are equally in flux and demand constant adjustment to sustain them. No social relation – be it with friends, family, neighbourhood or nation – can be taken for granted and assumed always to be there. We must assume everything will change over some period of time, accept that reality, and work to make that change as constructively as possible. Yet Heraclitus understood that, while the world is in constant flux, it also remains one. In his famous line about our never stepping into the same river twice, he acknowledges the dynamic quality of a river, but he did not believe that the river itself was different. The Mississippi River itself remains even though the water in it continually changes. Otherwise, we would not be able to identify anything, including ourselves.

That is why fire seemed so central to Heraclitus: it cleanses as well as destroys, rekindles as well as extinguishes, representing a reconciliation of

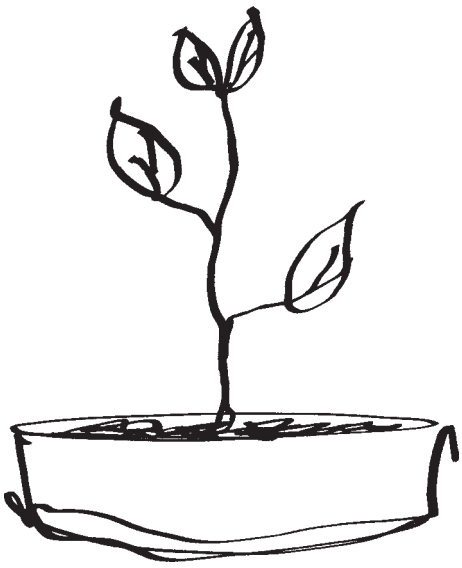
apparent opposites that is fundamental to our understanding of the world. At the same time, many of our confusions arise from our not seeing the oneness of the world that fire represents, and our not understanding its ability – and with it, our ability – to reduce everything we depend on to ash. It's as if we need to wake from the youthful dream fire has induced and take responsibility for what we grown-ups have wrecked with it.

PRINCIPLES

Instead of superfluous form, make everything count

This principle pervades both ecology and economics, although at least in the latter, it can lead organizations to reduce their workforces or eliminate apparent excess to the point where they become dysfunctional. The confusion here revolves around the question of form. Nature offers innumerable examples of highly efficient forms, in which every part counts in terms of the functioning of the world. But those forms exist in extraordinary quantities and with myriad minor variations whose redundancy allows for the kind of experimentation that makes evolution the best engineer, as the designer Santiago Calatrava puts it and as he has demonstrated in his own work, influenced by skeletal forms. But when economically driven organizations turn themselves into skeletons, with too few people, out of a misguided effort at eliminating everything superfluous, they end up having no form at all and often fail. As in nature's household, so too in our human ones, we need non-superfluous redundancy, efficient forms that have enough diversity and depth to remain vigorous and healthy. Another mistake often made here occurred in modern design, where the desire to eliminate superfluous form led to an over-elevation of function. Forms have to function, and superfluous form can get in the way of proper functioning, but that does not mean that function trumps form or that form doesn't matter. Instead, the goal should always be to find the most effective form for the function, without superfluity but also with enough redundancy and excess capacity to avoid the true waste of killing something by wringing all the life out of it.

Instead of quantity, focus on qualities



We can't count qualities the way we can quantities, and so qualitative differences tend to get downplayed in the economist's global household management, but that is where errors get made. Now that our economy, like our view of ecology, exists at a global scale, in which 'invasive species' pose a constant competitive threat, the qualities of things matter more than ever. We may not be able to count the reasons why one product or service prevails and another falters or dies, but it most likely has to do with its quality. If designed well, with qualities that elicit emotional attachments and symbiotic relationships, a product or service, or an organization itself, can fend off an invasive species, as a healthy ecosystem can do. Too great a focus on quantity can also have the opposite effect, turning something into an invasive species elsewhere, doing the very damage we seek to discourage in our own backyard. What is true of economics and ecology is also true of ethics, where too much of an emphasis on quantity, on the greatest good for the greatest number, can lead to perverse and ultimately self-destructive results, in which a substantial minority suffer while being told it is for the best. The ethical turn in design would have us weigh the quantity and quality in everything we do, balancing a desire to meet the needs of as many as possible with the qualities of character and the sense of duty that make us want to address those needs with all of the effort we can muster.

Chapter 2

How nature suffers in the naturalistic fallacy

A devastating storm came through my city during the writing of this book, knocking down trees and wires and leaving tens of thousands of people without power. It isn't until such a blackout that we come to appreciate how dependent most of us have become on electrical power, and how much our home- and work-lives revolve around connectedness and efficiency. I had become so accustomed to sending and receiving emails from all over North America and beyond, getting information electronically from my university

library or the internet, and doing this any time of the day or night, that being without power felt a bit like withdrawal from an addiction. It was ultimately a good thing. Neighbours were out sharing stories about the storm, and I met some people in my area for the first time, but it made me realize how much we have all given up in order to become more connected and more efficient.

Nor is the price we pay just personal, just a matter of not meeting neighbours or not taking walks. The ecologist C.S. (Buzz) Hollings and colleagues at the Resilience Alliance have found a relationship between the connectedness, efficiency, and resilience in ecosystems that suggests that we have given up much more than we may think. Hollings' group has found that the more connected the organisms are in an ecosystem and the more efficient the ecosystem has become in order to enhance its potential, the less resilient the ecosystem and its components become to unexpected changes. Indeed, as Hollings and Lance Gunderson suggest in their book *Panarchy*, ecosystems seem to move continually along a mobius-like, figure-of-eight loop in which growing connectedness and increasing efficiency leads to the eventual collapse and re-organization of the whole system into a more resilient form[1]. We humans might think that we are immune from this cycle, but not so; panarchy plays out across all species and all ecosystems. Humans have never been as globally connected or as digitally efficient as we are now, but we have also never been as lacking in resiliency as we are now, as I discovered during that blackout. Work life and to an extent home life came to a stop as we waited for the power to come back on. It finally did, and I returned to my highly connected, efficient life, but had the power not come back or done so in a sporadic or unpredictable way, the change to my life and that of my family, friends, and neighbours would have been dramatic.

We can all adapt to temporary inconveniences, such as the loss of power, and so, at an individual or group level, we remain relatively resilient. But when the lack of resiliency occurs at the species level, at our ability as humans to adapt to sudden and profound change, it becomes much more a matter of survival. Hollings' and Gunderson's panarchy theory suggests that the human ecosystem, like the non-human kind, will emerge from a collapse more resilient than we are now, but we will also be much less connected and much less efficient than before. That resiliency may mean that the world our progeny occupy will be much more diverse, fragmented, and localized than one many of us live in now, much more like the feudal societies of medieval Europe or

the tribal societies of parts of Africa and Asia today. To our ears, this may sound like a more primitive existence, although that is mainly because we have become accustomed to judging the sophistication of a civilization according to its technological prowess, which leads to its being more connected and efficient. Resilient societies are simply sophisticated in other ways, as anthropology has amply demonstrated in its study of diverse cultures – especially those cultures able to thrive on locally available resources and knowledge.

A studio in my college had their students design and build shelters for a Native American sweat lodge ceremony, using for their structures only those materials available to them on the scrubby wooded site in which they were working. The students did amazingly well, and soon learned how difficult it is to design and fabricate a simple shelter using nothing other than local materials, even though human societies have done just that for centuries. The students also demonstrated in their work how imagination can make up for a lack of material resources. Their sweat-lodge structures, while 'primitive' in one sense, were also highly sophisticated in another, with inventive ways of fastening materials together, of using structural principles to their advantage, and of seeing the complexity of even the simplest building. Highly resilient societies such as those of the Native Americans before Europeans arrived, offer us ample evidence of this. There are few structures more efficient and elegant that the American tepee, for instance, able to be put up and taken down quickly, easily transported, and efficient in shape, enclosing a maximum amount of space while providing for a maximum amount of ventilation and wind resistance.

When our connected and efficient world returns to a more resilient one, we will need to relearn what native populations around the world have long known: to thrive in sometimes harsh and unforgiving climates. This does *not* mean that we will all be living in tepees or doing sweat lodge rituals. The resiliency of human cultures is as varied as the cultures themselves, and we will inevitably build upon what we have been in the past. But a greater resiliency will make ethical and sustainable ways of living more central, a change in the sometimes marginal position that both design and ethics have tended to have over the past century. It's true that design has played an important part in creating our interconnected, efficient world, providing us with the electronic equipment, the transportation vehicles and systems, the high-rise buildings and mixed-use cities we use or occupy. And ethics

has become more visible recently, mainly for its absence in the high-profile scandals that have happened in recent years as selfish practices by corporate and governmental leaders has brought down entire companies, sent countries off to unprovoked wars, and landed a number of business leaders and politicians in jail. But design and ethics have hardly been at the centre of attention. That may be because both ask inconvenient questions about what is the right thing to do in particular situations, which may run counter to what is the most profitable or most self-interested action. But the questions design and ethics ask will be exactly what we will need in a future in which satisfying our basic physical needs and defining the basic rules for interaction will be most important. Such a future can be, as the political theorist Thomas Homer-Dixon has argued, a period of great creativity, in which many alternatives can be tried and tested, making the practical inventiveness of design an essential tool[2].

Homer-Dixon calls such creative thinking the 'prospective mind', the ability to look imaginatively into the future and envision the possibilities of what lies ahead. Both designers and ethicists tend to take this quality of mind for granted, since both are constantly looking ahead – envisioning the 'what ifs' of a situation and evaluating its implications. Also both designers and ethicists often don't appreciate the value or difference of this mindset from that of others. It isn't that other perspectives don't also have merit, but very few other disciplines speculate about the future the way these two do. When an ethical issue arises, the ethicist will seek the best solution given the specific situation, playing out the different possible scenarios and evaluating their consequences. The same is true of a design problem. The designer will derive from the specifics of a statement of need a variety of options from which the client can choose. These fields are different from, say, futurists, who envision broad changes with few specific applications. Design and ethics, instead, remain grounded in the everyday and in the very specific, from which they develop general principles and particular recommendations that can be implemented.

This has been reinforced by professional associations, whose codes of ethics and ethics committees have typically focused on conflicts of interest or unfair practices in the carrying out of a profession. And yet, because of the association of ethics and practice, designers have not always seen the ethical implications of design itself, something that has begun to change. In design schools, there has been a definite shift of interest among many students,

who now seem to enter the design fields less to create heroic form or radical images, and more to make a difference in the world, to help others and help the planet. Ethics, in other words, has joined aesthetics and pragmatics as driving factors in the 'prospective mind' of many designers. The 2000 design exhibition organized by the architect Massimiliano Fuksas at the Venice Biennale, 'The City: Less Aesthetics, More Ethics', captured this shift of emphasis among designers toward the ethical turn in design[3].

Not that we, as designers, have ethics down pat. While most designers understand that we cannot steal, cheat, or lie – some of the basics listed in the various codes of ethics in our fields – it is less clear what the ethics are of designing something intended to mislead someone, to hide something, or pump something or someone up beyond what they deserve. Is it ethical to cater to the ego of a client just because they have a lot of money? Is it ethical to use materials that have toxic effects just because they are affordable and available? Is it ethical to create false impressions of something just because we've been commissioned to do so? Such dilemmas, and many more, confront designers all the time, if they choose to tackle them. This isn't about moralistic design, but rather about good design – design that expresses the truth, even in the face of power. When design is used to disguise or dissemble, it rarely succeeds, for as a collective art that involves so many different players, its results often reveal the insecurities and insincerities of its creators. It is simply harder to hide the real intentions of something so public as design. Every designer, like every person, has to accept the lack of honesty in some people, including, on occasion, our colleagues or those who commission us. But we should not tolerate – nor are we likely to get away with – a lack of truthfulness in our own work.

Ethical concepts like speaking the truth or being honest run up against the claim, common in the twentieth century, that these ideas are a matter of personal opinion or perhaps simply a way of disguising an attempt by an individual or group to grab power by asserting that only they know the truth or only they are honest. As we will see later in this chapter, the association of ethics and aesthetics with subjectivity, as simply emotional expressions or matters of personal taste, has led to a gradual decline in popular discussion of these issues, which has weakened the sense among the public and within the design professions of the connection between aesthetics and ethics or of the value that both bring to the world. In the wake of this relative neglect, we have seen some remarkably unethical behaviour in certain quarters of

the business world, as if anything is ethical until you get caught. We have also seen the ugliness of our ordinary built environment gradually increase, perhaps the product of the rather unlovely way in which the physical world has been turned into a set of abstractions: profit-and-loss statements, zoning envelopes and building codes, investment criteria and real-estate portfolios. No amount of ornament on the façade of a big box can hide such blindness to the complex, diverse, and irreducible reality of the human and natural ecosystems of which we are inevitably a part.

The increasing abstractness of the built environment in which we live is ironic, since both ethics and design are among the most specific and concrete of human activities. Ethics, among the branches of philosophy, has remained relatively close to the particular dilemmas that we all encounter in our lives. Do we do what someone in power tells us to do if we think it is wrong, or do we refuse to carry out the command, even if it means that we personally pay for such a decision? Ethics can help us weigh the different courses of action we might take in such situations, as well as help us accept the consequences of our decision, since all too often the right action can lead, at least in the short term, to personal inconvenience or even hardship. Design, too, deals with the most basic of human needs – community and shelter, transportation and infrastructure, clothing and communications, products and systems – and it ultimately gets judged by it usefulness, durability, cost-effectiveness, and elegance, among many other very concrete criteria. Design also helps resolve conflicts between, say, what a client wants and what they can afford, what a property owner wishes to do and what a community will accept, what a group requests and what a regulation allows.

Despite their specificity and concreteness, though, ethics and design, like so many other professionalized fields over the last century or so, have developed their own, highly formal and sometimes jargon-filled way of expressing themselves, which has the effect of keeping out a broader non-professional audience or the participation of a wider group of potential colleagues. Jargon can be efficient; it can convey more content in less space than more accessible and literate ways communicating. The same is true of the technical drawings that designers make in order to build or fabricate things: they convey in a very compact form the dimensions and actions required to create the design. But abstractions can become ends in themselves, jargon can turn a group inward, and technicalities can become a barrier to communication. If fields like ethics and design have, on occasion, felt marginalized or at least

not as much appreciated or as well compensated as perhaps they should be in the wider population, it may have something to do with the abstractness of their current practices and modes of communication. I experienced this first-hand in a project I was involved in, where the designer presented the proposed scheme at a public forum, using so much jargon that few in the audience understood what he was saying. The project was tabled until, at a subsequent meeting, it was re-presented using commonly understood words and straightforward descriptions, at which point it won the necessary approvals.

The necessity for clear communication by both designers and ethicists will become even more critical as we move from a more connected and efficient world to a more resilient one. In that transition, what will matter most is not individual expression or idiosyncratic actions, but the relationships among humans and with the natural world, something that design and ethics can excel at. Ethics addresses the moral dilemmas that occur among people, our obligations to and responsibilities for others, while design helps us deal with the physical conflicts that arise among us as individuals, family members, and participants in communities and organizations. Just how far such a relational view of things extends is a matter of debate in both fields. While ethics does address issues that arise in the relationships of people, it is not totally relative. There are certain ethical principles that humans seem to have in common across time and cultures, principles such as doing unto others as you would have them do unto you. That 'golden rule' gets stated in slightly different ways in particular cultures, but it remains almost universally embraced across all.

The same issue of universals and particulars has occurred in design. Design remains a product of a particular set of circumstances, the needs of a particular group of people in a particular place at a particular time, although the most compelling design also appeals across cultures, evident in the number of people who travel long distances to see landmark structures or historic places. Likewise, the most powerful design ideas easily travel around the world, getting reinterpreted in different ways in different places. Well-known designers might like to think that this is largely a result of their aesthetic decisions, and that is partly true, but the character of a design that makes it most convincing to others stems from the interaction of its form, function and fit: what it looks like, how well it works, and how right it is in its context. Some will argue that these are not necessarily connected, that

something can be beautiful but dysfunctional, or sublime but toxic, but such disjunctions make it no longer a work of design. The thing in question might be a work of art, with no function beyond its own being, or a political statement, with no intention to serve more than that one purpose or election cycle. But design, by its very definition, has a function as well as a form, with a charge of trying to improve or do good in the world in some way, and so design, at least, cannot escape the connection between commodity, firmness, and delight, between ethics, pragmatics, and aesthetics.

What if, despite our best intentions to act ethically or to do good design, we find ourselves in a social setting that works against that goal? Much of the discussion of ethics in design, as in every other profession, often revolves around the argument that we need to do what we consider to be the right thing, regardless of what we might be asked to do by a client looking to take advantage or a short cut. This becomes more complicated though when the society at large forces us to act in ways that run against what we value. The unsustainable growth that modern civilization has undergone over the last century is an example of this. However much we might as individuals or groups value the natural world or future generations, and not want to do anything that would damage their ability to thrive, almost every thing available to us in our daily lives has that result. Because so many of the products, environments, and systems that we use have been designed with the assumption that the cost of what we do to the natural world or to future generations is an externality that we cannot quantify or need to factor into our prices, we cannot help but degrade what we might, individually, value a great deal. There are steps we can take as individuals or small groups to counter this, but those efforts only go so far. We can provide habitat for a diversity of species in our back yards, but can do little to prevent a nearby commercial developer from clearing their property of woodlands or wetlands in order to build on it. We can buy union-made goods, but we cannot affect the buying decisions of others, less concerned about social injustices. Or we can drive a hybrid fuel – electric car, but can't demand that others do. And so, while individual behaviour matters, it, alone, cannot change the unsustainable, unjust, or unethical actions of an entire society.

The issue here goes beyond the externalizing of costs not directly related to the making of things. The damage to the natural world and future generations that we are all, perhaps unwillingly and unintentionally, complicit in derives from an essentially competitive view of reality. Many in modern, Western societies have come to believe that competition is almost always good, that

it increases wealth, improves standards of living, spawns creativity, and encourages risk-taking. And anything that discourages competition, be it a government regulation, a conservation effort, or a call for social justice, gets labelled as a threat, as a competitor for those who see everything in terms of competition. The ethical question, though, is: has competition gone too far? Have we come to the point where competition itself has become self-defeating and against our self-interest? A useful tool in answering such a question is the so-called 'prisoner's dilemma'. In this dilemma, two prisoners, each suspected of a crime, are both told that if one testifies for the prosecution against the other and the other remains silent, the betrayer goes free and the silent prisoner receives the full ten-year sentence. If both stay silent, both prisoners are sentenced to only six months in jail for a minor charge. If each betrays the other, each receives a five-year sentence. What makes this so powerful is that the prisoners who pursue their own self-interest in trying to get off free end up worse off than if they cooperate. Capitalism at its worse works in the same way, with one competitor trying to take advantage of the weakness of another. The irony is that if the other competitor does the same, both are worse off. As the ethicist Peter Singer puts it, 'the individual pursuit of self-interest can be collectively self-defeating'[4].

The philosopher Robert Axelrod has shown that the strategy that works both individually and collectively in the prisoner's dilemma is what he calls 'tit for tat'[5]. The best results arise when the two prisoners cooperate, but if one acts uncooperatively the other has to as well – tit for tat – resulting in both being worse off. But this eventually leads them to see that they are better off cooperating than competing. We see this time and again in relationships, where two people or two groups start off cooperating, then begin fighting, and finally realize that they are both better off finding ways to get along. But the same prisoner's dilemma has widespread societal implications. We humans are, in a sense, prisoners on this planet, with no other place to go to. And over our long history as a species, we have gone through the phases that prisoners do: initially cooperating in small communities and with nature, and then moving into a competitive phase in which we have tried taking advantage of others as well as natural resources. Have we finally reached the point where we can now begin to cooperate once again, realizing how much 'tit for tat' competition ends us working against us all over the long run?

If we have, we will need to start telling a different story about ourselves and about nature. In our competitive phase, for instance, we saw competition everywhere, including in nature itself. Herbert Spencer's notion of Social

Darwinism applied to human relationships the constant struggle for the survival of the fittest that Charles Darwin saw in nature[6]. While we now see that struggle as having a large dose of good fortune mixed in with it, as the paleontologist Stephen Jay Gould concluded from his study of fossil remains, the metaphor of competition has been a dominant theme in our understanding of ourselves and of nature[7]. We have also seen nature as a competitor, taking advantage of its weaknesses for our own benefit and seemingly getting away with it, as does the prisoner who 'tells' on his accomplice and thinks he will benefit from it. But, as in the prisoner's dilemma, nature can strike back, tit for tat, as it has begun to do in a major way. And as scientists like James Lovelock have observed, humans will certainly be the worse off for it[8]. In that sense, nature is both the other prison inmate and the prison itself, a player in our competitive game and the context within which the game occurs. With so much stacked against us, it is sheer hubris to think that we can 'win' over nature and exploit its apparent weakness for our benefit.

In the end, the prisoner's dilemma shows that cooperation is always better than competition over the long run. We can arrive at this conclusion through logic, through a clear-eyed evaluation of where tit-for-tat competition gets us in the end. We can arrive at it through historical evidence, in which our very success as a civilization depended upon our early cooperation, as Jared Diamond has shown, in cultivating crops, domesticating animals, trading goods, exchanging ideas, and developing technology[9]. Or we arrive at it through the hard knocks of experience, where we finally tire of endless competition and begin to imagine another, healthier way of being.

Take the design and construction industries. While designers can be highly competitive among themselves, almost all work in cooperative teams, helping solve problems and resolve conflicts for their clients in order to create a better result. And that cooperation extends beyond practice to design itself. One of the criteria used in judging the worth of a design is how well it has resolved all internal conflicts or competition among its parts. And yet, despite this, competition has continued to dominate the fabrication and construction industries, until very recently. From the very moment a final design goes out for competitive bidding, competition has ruled, with adversarial relationships almost a constant through the process. Not every project endures such hostility. In a kind of tit for tat, some projects start off and continue to go smoothly, with each side matching the good will of the other. Meanwhile other projects seem to get progressively worse, with one hostile act leading

to another. No one seems to win in the latter cases, and for many reasons, there has been a move towards various forms of integrated practice, in which designers work much more closely with and sometimes as one with contractors or fabricators. If those in one of the most competitive industries can work together in more cooperative arrangements, there is hope for the rest of us.

Evidence that human civilization itself seems to be moving in this direction comes in the way in which we now, increasingly, see the natural world. Instead of seeing only the struggle for survival in it, scientists have also begun to see the cooperative interdependence of species in ecosystems, in which every organism has a part to play in the whole. As the physicist Fritjof Capra describes it, 'the cyclical exchanges of energy and resources are sustained by pervasive cooperation. Indeed, we have seen that since the creation of the first nucleated cells over two billion years ago, life on Earth has proceeded through ever more intricate arrangements of cooperation and co-evolution. Partnership – the tendency to associate, establish links, live inside one another, and cooperate – is one of the hallmarks of life'. He goes on to argue that this, in turn, will alter human institutions and communities. 'In human communities partnership means democracy and personal empowerment, because each member of the community plays an important role. Combining the principle of partnership with the dynamic of change and development, we may also use the term "co evolution" metaphorically in human communities. As a partnership proceeds, each partner better understands the needs of the other. In a true committed partnership both partners learn and change – they coevolve'[10].

One of the conceptual stumbling blocks we face in creating new, cooperative, co-evolving communities lies in what the philosopher G.E. Moore called the 'naturalistic fallacy'. He argued that it is a fallacy to assume that a natural connection exists between facts and values, between the world as it 'is' and what we think it 'ought' to be[11]. We may think that people 'ought' to cooperate, but that has no necessary connection to the world that at least some people think already 'is' – a world of competition. Moore's notion of the naturalistic fallacy arises from an observation the philosopher David Hume made in his 1740 book *A Treatise of Human Nature*:

> In every system of morality, which I have hitherto met with, I have always remarked, that the author proceeds for some time in the

> ordinary ways of reasoning, and establishes the being of a God, or makes observations concerning human affairs; when all of a sudden I am surprised to find, that instead of the usual copulations of propositions, is, and is not, I meet with no proposition that is not connected with an ought, or an ought not. This change is imperceptible; but is however, of the last consequence. For as this ought, or ought not, expresses some new relation or affirmation, 'tis necessary that it should be observed and explained; and at the same time that a reason should be given; for what seems altogether inconceivable, how this new relation can be a deduction from others, which are entirely different from it[12].

The naturalistic fallacy may seem like a highly technical argument among philosophers; however, it is anything but that. Hume's observation and Moore's subsequent elaboration of it became a kind of prisoner's dilemma for ethics, and indirectly for design. Both ethics and design have, historically, always moved between the two worlds that Moore claimed had no natural connection: the world of facts, of materials and dimensions, fabrication and construction, and the world of values, of what doesn't yet exist but could be and what we think ought to be. No designer would say that bridging those two comes naturally. After all, designers go to school for a long time and practice long hours to learn how to move between the world as it 'is' and as we think it 'ought' to be. To disconnect them or say that any natural connection between them is a fallacy, creates an enormous dilemma for designers, as it has for ethicists. In some ways, twentieth century ethics and design have been a working out of this dilemma, one that we need to get past if we are to move forward in the century we are in.

In addition to his claim that there is a split between facts and values, Moore argued that the 'good' was an intuitive and self-evident concept that did not lend itself to rational analysis or debate. Some of the leading architects of the first half of the twentieth century echoed this claim, perhaps in part a reflection of the influence Moore had on modern thought in that period. When Le Corbusier presented his Plan Voisin for Paris in the 1920s, calling for the demolition of much of the historic city and the construction of a series of tall towers, or when Frank Lloyd Wright proposed his Broadacre City in the 1930s, envisioning a sprawl of single-family houses connected by highways, they seemed to brush aside the traditional ways in which we had built cities or occupied the landscape, with more tightly clustered urban settlements

surrounded by fields and forests. Their sweeping visions were displayed as if intuitively and self-evidently good and were largely embraced in the design community with relatively little dissension. In a way that echoed Moore's pushing aside the long-held connection in ethics of facts and values, Le Corbusier and Wright suggested that their visions were grounded in the facts of the modern world, in the growth of automobile use, of new materials and technologies, and of new more efficient and connected ways of living, justifying what they thought 'ought' to happen with a revisionist view of what 'was'.

Those two architects, like many modern architects in the early to mid-twentieth century, paid little attention to the buildings demolished or the human and natural ecologies displaced by their visions. Having seen their ideas now largely realized in the urban renewal around downtowns and in the suburban sprawl around cities, we now find it hard to look at the Plan Voisin or Broadacre City and not see them as particularly unjust to the poor, entirely too willing to treat people as means rather than ends, and seemingly blind to the negative consequences of such wholesale clearance. Such unacceptable consequences remind us of how much design is a form of applied ethics, and once we disconnect facts from values, we open ourselves up to the possibility of unethical actions taking cover under the claim that they are morally neutral and factually based. It may be that the real fact–value split exists between the supposedly value-free facts that benefit those in power, and the inconvenient facts that those in power don't like facts that can then be easily tagged with the naturalistic fallacy as being corrupted by values.

A.J. Ayer and C.L. Stevenson, in the mid-twentieth century, tried to find a more benign version of Moore's ethics[13]. They saw ethical statements as emotional utterances or expressions of what a person feels about a situation. In this, they nicely avoid the trap of complete subjectivism, which makes it impossible for us to ever agree on what constitutes the good or right, since it becomes a matter of one person's opinion against another. Ayer and Stevenson's 'emotivist' ethics, instead, suggests that our expressions of emotion can compel agreement among people in the way that all artistic activity can. This implies that ethics is like fictional truths rather than factual ones, able to move us to concerted action even though the situations have not actually occurred.

Modern design in the second half of the twentieth century reflected that ethical stance. The diversity of approaches that arose after World War II

and the tendency of architects to create less rational and more expressive and sublime settings echo the 'emotivist' ethics that so dominated modern thought at the time. The swooping forms of some of Eero Saarinen's airports, the energetic shapes of Eric Mendelsohn's synagogues, or the silent gravity of Louis Kahn's late work – they all sought to have an emotional effect on us, and they often succeeded brilliantly at doing so. We now look at this work from a more holistic, environmentally grounded perspective and see the shortcomings of these buildings in terms of energy, material, and land use, but their impact was more limited than the sweeping urban visions of their predecessors, in the same way that 'emotivist' ethics made more modest claims about individual behaviour, as opposed to Moore's broader argument about the good.

A third and even more benign response to Moore's severing of values from facts has come from philosophers such as J.L. Mackie and Richard Rorty in the last quarter of the twentieth century[14]. While both accepted Hume's argument that ethics is essentially relative in nature, they separately acknowledged that ethics can have objective value to particular communities or cultures at particular points in time. Ethics, in other words, may have no grounding in fact, at one scale, but at another scale, it can represent the facts as a particular culture sees them and the values that a particular a group of people agree to. Mackie and Rorty thus emphasized the socially constructed nature of ethics, and its importance in enabling societies and communities to function.

That notion of socially constructed ethics recalls the contextualism of late twentieth century architecture, in which architects eschewed singular visions of the city and unified conceptions of their own work, in favour of sometimes highly eclectic responses to the settings in which they worked, producing buildings of one character in one place and of a very different character in another. Robert Venturi and Denise Scott Brown's buildings, for example, often reflected their context in exaggerated, Pop Art ways, while those of Robert A.M. Stern frequently changed style and materials depending on the historical setting in which they stood. By the end of the twentieth century, in other words, we had worked through the 'is–ought' problem, from the more extreme and absolute interpretations at the beginning of the century to arrive at a more democratic, participatory, and contextual form of ethics and design, suited to particular places and people.

The naturalistic fallacy has had its benefits, nevertheless. While it gave cover to utopian visions that would have been viewed as completely unaccepted

in earlier, more ethically grounded eras, the fact–value split did draw our attention to the opposite abuse, attaching moral value to whatever a particular person or groups thinks in good. Take, for example, the widespread concern for 'honesty' in the use of materials in buildings or in the revealing of their structure or mechanical and electrical systems, characteristic of so-called 'brutalist' architecture of the 1950s and 1960s. While that architecture had relatively little popular appeal, their proponent's claims of honesty made it was hard to argue against, a moral attribution to a set of facts that helped make the exposure of elements in a building acceptable to people who otherwise might have objected to the rawness of it all. But, ultimately, the debate about honesty in architecture covered up other virtues left unattended to by architects at the same time, virtues such as justice, courage, or mercy. So, while mid-twentieth century architects boldly exposed the workings of their buildings or left the materials unpainted in the name of honesty, that honesty did not extend to dealing with the large numbers of ill-housed people whose fate remained largely overlooked by all but a relatively small number of social activists in the profession. Honesty became the one virtue most could embrace because it applied to the making of buildings without having to question the inequalities and injustices that often lay behind the wealth and power of the people who commissioned architects.

A similar use of an ethical idea while avoiding other unethical behaviour occurred with the prevailing utilitarianism of so much twentieth century architecture. Many mid-century modern architects, like the broader business community, were largely driven by utilitarian values, taking comfort in the notion that they sought the greatest good for the greatest number of people, an ethic, like honesty, that seems hard to disagree with at first glance. Why not try to help as many people as possible? But the utilitarian calculus often leads to what de Tocqueville, in the nineteenth century, called the 'tyranny of the majority', in which the needs of the minority get brushed aside as not in the best interest of most people[15]. In architecture, we saw this not only in the urban visions of architects Le Corbusier and Wright, but also in the mind-numbing suburban developments and the dumbly repetitive office buildings of the post-World War II period. The majority might have found themselves better off materially, but a minority – or rather, minorities – often got left behind and with little hope. The greatest good for the greatest number can end up with a lot of bad things happening to a few.

At the beginning of the twenty-first century, we need to get past the ethical blind spots we have inherited from the past. We need to stop making ethical

arguments that enable people to do evidently unethical things, whether it be with the claim of moral neutrality and honesty or by appeal to doing good for the greatest number, even if at the expense of others. Facts and values have always been connected, if not 'naturally', then through the hard work of making arguments, finding connections, and resisting all claims for there being value-free facts or factually determined values. As we construct our future, we need to see facts and values as both necessary. The facts of the world, including the inconvenient ones that few want to deal with, are the building blocks with which we can create a better world, and values are the intentions we have in putting blocks together in certain ways and in particular places. Facts without values are useless; values without facts are pointless.

Nor is this simply a theoretical matter, something of only academic interest. We face enormous environmental, social, economic and political challenges at a global scale, with little time to act before we face the prospect of major disruptions in our lives. We frankly don't have the luxury of debating whether ethics has any factual basis or whether the good is definable. Ethics are like tools, of great use to us, especially in times of tremendous change such as we now see on the horizon. We should use them when appropriate and judge them according to what they can do for us, and how helpful they are in guiding us in what might be the best course of action in a given situation. Instead of seeing the fact–value split as a question of whether ethics, per se, has validity, we should use it to judge what factual basis a particular set of values might have or what value a particular set of facts might have. The split is not an insurmountable one, as Hume suggested, but a useful distance in order to evaluate the merit of both facts and values.

The fact–value split also has use as a way of seeing how facts and values intertwine. Much of the fact–value debate has focused on the relationship – or rather, the lack of a necessary connection between – what 'is' and what we think 'ought' to be. But all too often, the debate has assumed that the world of facts, the world as it 'is', is indisputable. That may be true for certain kinds of facts, say the fact of gravity or the speed of light. But facts never exist in a vacuum, and they look different to us, based on our interpretation of them. We once saw nature as a competitive realm of survival of the fittest, and now, with largely the same facts in mind, we increasingly see nature as a set of ecosystems in which interdependent species cooperate in order to survive. As our perception of nature has changed, so too has nature changed, if for no other reason that

we may begin interacting with it and treating it much differently. What we think ought to be helps shape what is.

That is even more apparent in the designed environment, where the facts of the world are a direct product of our values. In the built environment in which most of us spend most of our lives, everything that 'is' is preceded by an 'ought', by someone or some group who thought that the world we make for ourselves should be one way and not another. Designers continually ask ourselves, as we create the world we live in, what we ought to do, what something ought to be, what others ought to have. In design, there are no facts disconnected from values, and no values that don't eventually manifest themselves in factual things – graphics, products, environments, structures, and systems. When designers deal with facts of this kind, the leap from 'is' to 'ought', which so troubled Hume, is not a leap at all, but an on-going interaction between the world as it is and how we think it should be. We just as often go from 'ought' to 'is' as we go the other way, and so the link between ethics and the world is not linear, but, like the design process itself, a cyclical and iterative relationship.

Moore was right in claiming that that connection is not natural, not inevitable or beyond question. But the 'naturalistic fallacy' should lead us not to scepticism about the very possibility of ethical discourse, but instead to a critical examination of the assumption of those in power that the world as they have created it is as it should be. Those in power, of course, might like to think that their view of things is, in fact, 'natural', enabling them to fend off challenges. The same is true of designers whose claims about their work being 'natural' makes it difficult to ask, for example, what effect the design might have on the natural world or on the life of future generations. The irony here is that those who commit the 'naturalistic fallacy' often do so to the detriment of nature or to anyone not in a position of power to challenge the claim. So we need to be constantly alert to those who commit the fallacy, while continuing to construct a world of value to all and embrace values that are grounded in even the most inconvenient facts.

Nietzsche understood the power relationships that underpin ethics as well as the built environment: 'Pride, victory over weight and gravity, the will to power, seek to render themselves visible in a building, architecture is a kind of rhetoric of power'[16]. And so designers need to be even more on their guard about assuming that what we do is natural, for if we are tempted to think in

this way, it may be more likely that what we are doing is really rhetorical, a 'rhetoric of power' as Nietzsche put it, that design is being used to advance. At some level, almost everything designers create has that connection to power, through the personal will of making something that doesn't yet exist as well as through the will to power of those who commission us. Nietzsche used the rhetoric of power in his own work; influenced by evolution, he saw the world as a struggle for existence, in which only the fittest survive. But the value of Nietzsche's thought lies in his making us aware that power relations underlie even the most apparently cooperative enterprises, and that being attuned to the 'will to power' is the best defence against it.

This is an area in which the designed environment can be quite useful. Because of the distributed responsibility of many people involved in the making of even the most modest design, the objects and environments we make often reflect quite accurately the values that underlie them. By learning to 'read' the designed world with this in mind, we often find that it does as much to reveal the will to power of its creators as it does give it cover. The number of structures and objects in our environment that speak to our fantasies of wealth, youth, speed, or strength is remarkable, showing in their overblown scale, shimmering skins, streamlined shapes or muscular forms just how insecure we are about such things in our lives. This is more pathetic than anything else, since so much of the designed world we inhabit ends up signalling what we lack more than demonstrating what we have that others don't.

We need to take such insecurities seriously, though, since they show the extent to which the changes we face in the future will come as a psychological shock to many people. In a world with no more inexpensive oil, with far too many hungry and thirsty people, and possibly hundreds of millions of environmental refugees, we will need to deal with a much higher degree of insecurity than many of us do now, in part because we will actually lack many things that we take for granted now. When we design and construct a building in most urban parts of the USA or Europe, we assume that it will have hook-ups to the electrical grid, the water supply, and the storm- and waste-water sewers, and that these services will ensure the smooth operation of the structure. Behind that assumption lies our faith in the government and utilities to meet our needs and protect our safety and security.

But as we have seen in once thriving cities such as New Orleans or Baghdad, the provision of public services can be very fragile indeed and very hard to

re-establish once disrupted. We may think of such places, now, as exceptions – the result of warfare or storm–induced levee breaks – but we may see many more cities and rural areas confronting similar catastrophic failures or collapses as the exponential growth curves we are on can no longer be sustained. That will lead to yet another way of looking at the fact–value debate, since the world as we think it 'ought' to be may come to be completely out of alignment with the world as it 'is' or at least as it has become. When we all, even the wealthiest among us, encounter the loss of power – both figuratively and literally – that we now often face only after a severe storm, the psychological challenge we will face will come in adjusting our values to fit the facts, learning how to see the world as it 'ought' to be in terms of what we can reasonably sustain. That is when ethics and design, far from being a marginal activities as they tended to be in the twentieth century, will become very useful tools to our ability to thrive, as I hope to show in the following chapters.

PLACES

Home

When we say that pleasure is the goal, we do not mean the pleasure of the dissipated ... but sober reasoning which searches out the causes of every act.

— Epicurus

Who doesn't think of home as a place of refuge or comfort? The images of published houses reflect the sensuality that we often seek in our personal shelter, be it in the clarity of space and light in architect-designed homes or the patterns and colours of designer-decorated ones. In that sense, houses seem inherently hedonistic, in which we pursue the pleasures of private life.

But as the Greek philosopher Epicurus argued, hedonism does not involve 'drinking and continuous parties nor sexual pleasures'[17]. Instead he urged us not to 'inflict trouble on anything else' nor be 'affected by passion or partiality'. For the father of hedonism, in other words, pleasure lies not mainly in the physical, but in the ethical; not in the quantity of things, but in qualities; not in taking advantage of others, but in not inflicting trouble on anything else.

Therein lies a dilemma in how we think of the home. As the architect Witold Rybczynski has documented in his history of the idea of home, its existence as a place of comfort and pleasure dates back to Europe's 'Bourgeois Age', beginning in seventeenth-century Holland[18]. In that period, the house went from being a spartan place of a few, multipurpose spaces, with little furniture and even less privacy, to a cosy collection of single-purpose rooms, with a great deal of attention paid to comfort and identity.

Who would argue against the desirability of comfort, any more than argue against the Epicurean idea that we all seek pleasure? Indeed, one of the trends of our time has been the spread of the bourgeois idea of home around the world, with many people on most continents seeking and, in their various ways, attaining the trappings of middle-class European and North American home life, made visible through global media. We have, however, lost a key component of 'home' in the process.

As Rybczynski observes about the first seventeenth-century 'homes', they reflected 'an unruffled moderation, an admiration for hard work, and a financial prudence bordering on parsimony'. Without that sense of restraint, the desire for privacy can lead to profligacy, even as the search for comfort can become consumptive in ways that our planet, let alone our purse, can no longer sustain.

Examples of this abound in the media and in upper-middle-class neighbourhoods in cities around the world. Houses have become larger and more lavish, as if we have become so addicted to comfort that we no longer know when to stop. This pursuit of ever greater amounts of domestic space, however, can wreak havoc on the lives of people who can barely afford their home, on the lives of other species who lose their habitat every time we turf over a site, and on the lives of future generations who will inherit from us a planet we have made much less hospitable in our pursuit of home.

We need, instead, a new idea of home. Rybczynski argues that ‘we must rediscover for ourselves the mystery of comfort’, and so we should. Epicurus understood that the greatest pleasures lay in non-physical states such as having good conversation and strong bonds with other people, or in rarefied physical experiences, relishing very small amounts of good things and being present for the pleasures that nature provides us for free.

The irony here is that we all can afford and in some ways already own the Epicurean idea of home. It lies with the people next to us, with those who join us around a table or who live and work near us, and with the nature outside our windows. And with that idea in mind, we need to ask of our homes not how much can we afford or how big they can be, but just the opposite: how little can we live with in terms of shelter in order to leave as much space and have as much time as possible for our real home, the one that is inside of each of us, and that we share with others, in the larger natural world.

Housing

For it is not death or hardship that is a fearful thing, but the fear of death and hardship.

— Epictetus

Public housing has become synonymous with the idea of a ghetto, a place in which people of a particular ethnic or economic group live in relative isolation from others. This was not always the case. When public housing first appeared in large quantities in the USA in the 1930s, governments saw it as transitional shelter for individuals and families in need of a place to live for a relatively short period of time until they could get back on their feet. But such housing eventually became a more-or-less permanent place to live for individuals and families, trapped there by bad schools, high crime, few jobs, and widespread prejudice.

While most of us may think of public housing as a place apart, it has become a mirror to ourselves. After World War II, the ghettoizing of public housing was

a part of a broader process in which people at almost every level of American society started to live in highly homogenous communities, next door to people largely like themselves. This represented an enormous change from the pre-war era, when most people lived in neighbourhoods with a relatively wide range of housing types, sizes, and prices, and in larger communities with different ethnic groups living relatively close by. After the war, many people began to move into mostly suburban developments characterized by nearly identical houses and nearly identical neighbours, ghettoizing themselves.

Why did we do this? Why, in our highly affluent society, did we choose to impoverish ourselves in this way, reducing the richness and variety of our experiences in favour of ever-more isolated and predictable lives? It surely wasn't out of sympathy for those among us who had no choice but to live in ghetto conditions, but perhaps it arose out for fear. Here, too, our public housing held up a mirror to the rest of us. The people living in public housing had real and legitimate fears of the gang violence that plagued their projects, but the media magnified those conditions and made crime appear to be much more prevalent than it actually was in most cities. And so began a downward spiral of our segregating ourselves into more distant and undifferentiated developments, creating vacuums in the cities that criminals sometimes filled, which in turn prompted more people to leave. This fostered what the critic Mike Davis has called the 'ecology of fear', a condition he observed in Los Angeles, but one that has become a characteristic of contemporary life: 'the social construction of "natural" disaster is largely hidden from view by a way of thinking that simultaneously imposed false expectations on the environment and then explains the inevitable disappointments as proof of a malign and hostile nature'[19]. Fuelled by media images that suggest that danger lurks around every corner, in every unfamiliar face or unknown place, fear has become the basis upon which we have largely designed the physical environment, reinforced by a belief that, through technology, we can overcome every danger.

And as we proceed into the twenty-first century, the ecology of fear has come to extend around the planet. It isn't just the local drug dealer or gang leader we fear, but the unnamed and unknown 'terrorists' who now dominate the news; not just specific natural hazards in a particular place, but a 'malign and hostile' global environment. Despite the fact that we are more likely to die of a lightning strike than we are of a terrorist attack, we have spent billions of dollars and wasted thousands of lives defending ourselves against this fear,

segregating ourselves in increasingly fortified homes, offices, and schools, with increasingly fascist forms of political control and surveillance that play upon our fear and that justify themselves by creating conditions of apparently constant war. At the same time, while global temperatures and sea levels will almost certainly rise over the course of this century, we hear accusations that it is nothing more than a liberal hoax and denials that humans are to blame, burying the fear beneath partisan politics while making the situation worse through inaction.

In the midst of all of this insanity, we forget that, as the Roman stoic Epictetus reminds us, it isn't death or hardship we need to fear, but fear itself[20]. The consequences of our not conquering fear is everywhere around us, and it has created, not just for the poor, but for all of us, a living hell, in which we have begun to ghettoize the globe into mutually suspicious and isolated camps. Who would have thought that public housing would eventually become a metaphor for how most of us live?

University

> *... this 'ought', or 'ought not' ... should be observed and explained, and at the same time that a reason should be given.*
>
> — David Hume

As I walk across the campus in which I work, I am struck by the difference between the solidity of the buildings and the scepticism of so much of the discourse that happens within them. That scepticism comes from modern universities standing on the horns of David Hume's dilemma that we often have no basis in moving from descriptive statements about how the world 'is' to prescriptive statements about how we think the world 'ought' to be. Universities spend huge amounts of research funding and apply untold hours of expertise to answer the scientific question of what 'is': how the world and everything in it works. Meanwhile, others, less well funded and much fewer in number, continue to seek answers to the ethical question of what we 'ought' and 'ought not' to do in particular situations.

The difference between those two groups amounts to more than the two cultures of the sciences and humanities that C.P. Snow argued in 1956 had divided the modern university into mutually suspicious camps[21]. Even among the humanities, ethics has had a hard time getting much respect, in part because of Hume's scepticism about its claims, which has influenced generations of thinkers since then. Nietzsche argued that ethics provide cover for our will to power; G.E. Moore, that ethics simply reflect our intuition about the good; A.J. Ayer, that ethics just express our emotions; and John Mackie, that ethics merely facilitates our getting along in society.

In the modern university, asking ethical questions became something one 'ought not' to do. And as a result, required classes in ethics largely disappeared for decades from curricula other than in philosophy departments, something for which we have all paid a price. The outrageously unethical and sometimes outright illegal behaviour of corporate heads, congressional leaders, and cabinet officials in recent years echoes the marginalization of ethics that occurred as at least an indirect result of the scepticism that has rippled through modern culture.

That has begun to change, however. Professional schools have started to reinstate courses in ethics, and a discussion of ethics has re-emerged in the popular press. But there remains the question Hume raised about what basis, if any, we have for making claims about what one 'ought' or 'ought not' to do, and how, if at all, does that connect to the factual claims that science and social science make about the world as it 'is'?

Influenced by empiricists like John Locke, Hume assumed that we move from 'is' statements to 'ought' statements, that we begin with the factual world and from that try to create an ethical one. But we just as often, maybe even more often, move the other way. What we value frequently determines how we see, so that the world as it 'is' is a reflection of what we think it 'ought' to be as much as what actually exists. That does not mean, as some sceptics have suggested, that the world as it 'is' doesn't really exist, that it is all a product of what we conceive. But it does suggest that when we go from the world as it 'is' to what we think it 'ought' to be, we are completing a cycle that begins with an 'ought'.

The university itself reflects this. Divided into disciplines and departments, centres and colleges, it has a structure within which existing knowledge gets

expressed and new knowledge discovered. What we once thought 'ought' to be becomes the basis for new understanding of how the world 'is', which in turn becomes the basis for new ways of thinking about what 'ought' to be. Rather than see ethics, with all of its 'ought' statements, as somehow unsupportable, we would do better to see it as the core of what it means to know. There is no knowledge of what 'is' without some sense of what 'ought' to be, and no knowledge of what 'ought' to be without some sense of what 'is'. The two cultures of the university – the sciences and the humanities – are but two sides, it seems, of the same coin.

School

I was so much older then. I'm younger than that now.

— Bob Dylan

I recently walked through my junior high school after 40 years, and found things I hadn't seen before. In my early teens, I can remember feeling certain of what I was going to do with my life: become a great architect like Frank Lloyd Wright, design buildings better than the ones I knew, and generally show everyone how they should live. Such certainty must have come from my yearning to be anything other than what I was: a tall, skinny, red-headed, and very awkward teenager. What I saw in those same halls forty years later was, as Dylan sang back then, how much younger or certainly how less certain I had become.

The seeds of that uncertainty came in seventh grade science class. My final project entailed feeding mice a high-cholesterol diet of egg yolks and cheese, killing them along with my control group of mice, dissecting them, slicing open their aortas, and looking for fatty deposits. I was so sure that I had the

answer to heart disease that I hardly knew what to say when, at the science fair, the judges asked me what else could have caused the fatty deposits? I remember standing there, speechless, which may have contributed to my not even placing an honorable mention in the competition. Too much certainty, I learned, can lead to certain failure.

As I stood and looked into my old science lab where that work occurred four decades ago, I realized that I didn't just learn about atherosclerosis there. That science competition marked the first of many experiences that tempered my youthful sense of certainty. Some of those experiences have arisen partly out of living, learning to see the world from the perspective of others unlike me, that most fundamental ethical act. But some of those experiences have also come from education. We often think of education as a matter of receiving information that will benefit us in later life, but it may be that true education involves unsettling us and opening things up for us, so that we see the world and ourselves in new ways. In that sense, the real education in my seventh-grade science experiment came after I lost in the competition, when I began to think of how I should have answered the judges' questions and what else might have caused the mice's death.

Of course, I caused their death, as I chloroformed each one of them and felt their life evaporate as quickly as the fumes from the cloth I held over their faces. We justify the killing of mice in the name of science and for the good of humanity, although I am less certain now than I was then about the ethics of this. I could have fed the mice different diets and still examined their aortas after they died, but I also could have let them die naturally, albeit not within the timeframe of my class. To a scientist – and science teacher – such bleeding-heart sentiments might seem naïve, which is probably right. But as I have grown older, I find myself less willing to turn away from ethical dilemmas, and more inclined to drive right at them.

Which is what I found most surprising about my recent walk around my junior high school. Forty years ago, my shyness made me terrified of ever looking like a fool. I would often sit in the back of the classroom and rarely spoke unless called upon. I had an almost unreasonable fear of appearing uncertain, a fear that I have almost entirely lost. It isn't that I like looking like a fool any more now than I did then, but the older I get, the less I care about what others think of me and the more I will stand up, however naïve I may appear, for what I care most about. I was young forty years ago in that school, but I thought I was so much older then I am now.

PRINCIPLES

Instead of throwing away, reuse or recycle

Human civilization evolved as one in which there were few resources and ample labour, if not necessarily in numbers of people then in terms of the amount of time people had to do things. It has been only a very brief period in human history, and in particular places like North America, that the obverse was true, that there was an abundance of resources and too few people and too little time. That unusual situation has helped create the throwaway culture of the USA that has spread to other parts of the world as a symbol of affluence and modernity.

The irony of this is that we cannot sustain this, and it no longer fits the reality of the human condition. We have, if anything, too many people, with the exponential growth in population over the last century, and we have too few resources, especially those that are most vital to the functioning of our civilization, like fossil fuels and fresh water. So the time has come to see

our disposable environment for what it is, an aberration in our history and one that we need to leave behind as we return to the frugality and thrift that characterized most of our existence.

There is nothing magical or mysterious in this. Instead of mindlessly disposing of things, we need to use our imagination in how to reuse or recycle what we have. Charles Jencks and Nathan Silver captured the quality of that in their notion of 'adhocism', showing how the deeply rooted human habit of finding new purposes for the things we have at hand has never entirely disappeared[22]. We need to reinvent ourselves as an 'ad hoc' civilization, and in so doing, liberate the imagination of every person to find a new use for every single thing.

This may seem to go against all that our economy wants us to do, costing people jobs and closing down industries. But what that doesn't take into account are the enormous economic opportunities in the old ways of doing things, in recycling and reusing as much as we can. In my city a hundred years ago, almost 50 per cent of the working population listed some sort of recycling as part of or the whole of their job. Such activities mean more jobs, not fewer, and more economic opportunity, not less. Trash anyone?

Instead of ignoring sources, attend to the source of everything

I, like many suburban kids, thought that food came from the supermarket and power from the light switch. While I learned otherwise as I matured, it struck me how few adults really knew the sources of what we use every day, even though we know it extends beyond the grocery store counter. This has a lot to do with the tendency of companies to disguise the original sources, as well as obscure the ultimate destination of things. We really don't know where most of what we use comes from or where it will go after we are done, and in that ignorance lies a huge missed opportunity and responsibility.

The responsibility comes in knowing what the real cost of what we use actually is. We pay a price at a store, and may think that we got a good deal, but all too often, that price does not account for the polluted air and fouled water and extinguished habitat and harmful working conditions that may exist half way around the planet, and that we tacitly, if unintentionally, support through our purchase. Manufacturers, suppliers, and retailers often don't want us to know this information in their lure of everyday low prices, but we all will pay a price for this missing information in the end, in ways that are much dearer than anything we pay now.

That, in turn, leads to the opportunity. If we had the full information about what we buy, not just its effects on our health, but on the health of the planet and the people who brought it to us, and the full information on the real cost of things, including the cost of the damage done to bring us those deceivingly low prices, we might well make very different purchasing decisions than we do now. We have only to ask. We can ask as individuals, and if retailers want

to make a sale strongly enough, they will get us that information. But the real power lies in asking as a group, as a union of consumers ready to strike whatever product cannot provide the essential information as to its source and its destination. Where did it come from? How did it get here? Where will it go? Such simple questions have the opportunity to transform consumer culture, and the lives of workers and other species in the process.

Chapter 3

Why having less is more

'I often compare the situation of living in the United States, to being in the eye of the storm', writes architect Sergio Palleroni, noted for his work to provide shelter to the poorest of people in impoverished nations. 'When you are standing in the eye of the storm, everything seems calm. But as you step away... you realize the storm you're creating is changing the rest of the world dramatically'[1]. Many who read this book probably live, like me, in the eye of the storm Palleroni talks about. We read of the political, economic and environmental storms engulfing billions of people and other species across

the planet, but it is easy to lull ourselves into thinking that we can forever remain in the eye and that we will never be buffeted by the human-generated winds and waves that have left so many people barely surviving. But storms move and their eyes break apart, and we will all eventually be affected in various ways by the economic hurricanes and typhoons swirling around us.

How can ethics and design provide humans the life jackets we'll need as these storms grow in intensity? Ethics can help us in two primary ways, reflected in the division in Western thought between the ancients and the moderns. Generally speaking, ethics involves questions about what constitutes being good and doing right. The first of these – being good – played a dominant role in the thinking of the ancient world, in the virtue ethics of philosophers such as Plato, Aristotle, Epicurus, and Epictetus, as well as of religious leaders such as the Buddha, Jesus, Augustine, and Aquinas. These thinkers all focused on the importance of developing a good character as the basis for our acting in good ways and for surviving the hardships that inevitably come our way in life. Virtue ethics went out of favour for much of the modern era, although it has witnessed a revival in the latter half of the twentieth century in the work of philosophers and writers such as Philippa Foote, Alasdair MacIntyre, and Iris Murdoch[2].

The second approach to ethics – the concern about doing right – has dominated the modern era, ranging from the social contract ethics of Thomas Hobbes to the duty ethics of Immanuel Kant to the utilitarian ethics of Jeremy Bentham. They focused not on our character, but on our actions, looking at the obligations societies and individuals have toward each other, whether thought of in contractual terms or judged according to the intentions or the results of our actions. This view of ethics has remained a primary concern of philosophers in our own era, such as John Rawls, Thomas Nagel, and Peter Singer[3].

The built environment has reflected this shifting interest within ethics. While we may think of virtue ethics in terms of the rhetorical inscriptions that the Greeks and Romans applied to their temples and public buildings to remind people of what it means to be a good citizen, such ethics had a much deeper effect on design in the ancient world. The classical virtues of courage, justice, prudence, and temperance led people to lead mostly very modest private lives, while valuing, as Hannah Arendt has argued, the public life as the place in which we, the most social of animals as Aristotle observed, could be most human[4]. That sense of the virtues guiding us to be courageous in the face of

setbacks, to be just when we encounter inequities, to be prudent in our use of resources, and to be temperate in our expectations of life – all of which will be of great value as we encounter, like many societies before us, much greater physical and material limits than many of us, living in the eye of the storm, have seen before.

The attention paid to doing the right thing in modern ethics has, in turn, found its reflection in modern architecture, whether it be the utilitarian emphasis on function and efficiency in many commercial and industrial buildings, or the focus on our duty to others in the creation of public parks or public housing, or the embrace of a social contract in our adherence to building and zoning codes and in our respect for the property rights of others. While modern architecture, like modern ethics, has encountered its share of criticism for its unintended consequences or insensitivity to place, these approaches remain influential in shaping our actions and the built environment that contains them. Likewise, such action-oriented ethics should also prove quite useful in years to come, when we attend to our duty with fewer resources at our disposal, when asking what is the greatest good when great numbers of people have so little, and when re-imagining a social contract for a society much more mobile and mutable than those in our immediate past.

The large-scale division of ethics into being good and doing right, like the broad-brush division of design into the ancients and moderns, barely begins to get at the many ways in which they can help us survive and thrive in the future. Within each of these categories, there exist multiple interpretations and matters of emphasis that reveal different approaches depending on the situations we face. As with design, it is hard to talk about ethics in the abstract. Both fields, in the end, remain wedded to particular situations, and have different ways of addressing specific questions, which may vary from one place and time to another. So, let's begin at the point where most people encounter ethics, which is also where many people have traditionally experienced a major work of design – in a church, temple, synagogue, or mosque.

Most people do not study ethics formally, any more than they do design, even though we all confront ethical dilemmas as constantly as we do designed objects and environments. In many cases, the ethics people know come largely from religion, which they might have learned by attending religious services and classes or by simply being a part of a culture, almost all of which have a grounding in a set of ethical ideas that often arose originally

out of religion. All religions have embedded within them the tools to survive setbacks, disappointments, and hardships, which is why many people turn to religion in times of trouble. The irony is that most established religions have also evolved into large, wealthy, powerful institutions that sometimes fall prey to the very hubris that leads people to the crises that religion seeks to address. But, whatever the limitations of organized religions, the ethical ideas in religions can be very helpful, especially when the excesses of modern civilization have brought us, collectively, to a crisis of global proportions.

Take one of the oldest religious texts in existence, the Bhagavad Gita[5]. It begins with the warrior, Arjuna, in a crisis, standing in his chariot and about to go into a battle that would pit allies and friends against each other, a situation not unlike what could happen in a future of diminishing resources and growing population, in which not only enemies might go to war with each other, but also families and neighbours. The god Krishna responses to Arjuna's despair with the seemingly paradoxical idea that Arjuna should do his duty and go into war without worry about dying or causing others to die, since the body and the material world in general are ephemeral and that nothing can kill the eternal soul in us.

To modern ears, such advice seems quite odd, since we have largely become accustomed to see the material world as permanent, seeing death as something to fear, and viewing the killing of others as an evil. How could a god, in this case Krishna, advise doing just the opposite? Krishna offers Arjuna, however, a profound ethical insight of great use to us all as we face difficulties as metaphorical charioteers on life's battlefields. We often think, as Arjuna did, that material reality really matters, that we can't live without it and that its loss would leave us bereft, but in fact very little of it matters and we can live without all but the essentials needed to sustain life. Moreover, we can find happiness without it if, as Krishna urges Arjuna, we focus on doing our duty and serving others. As we enter a period in which many people will be needing help, valuing the duty of helping others will become key to our making it through our collective hardships.

The argument in the Gita also may sound odd to designers who make things in the physical environment all the time. Reading Krishna words to Arjuna might tempt a designer to do what Samuel Johnson did when hearing of David Hume's scepticism about cause and effect and reality in general: Johnson went over and kicked a rock to demonstrate that things do exist and that

kicking a rock has the effect of causing pain[6]. But Krishna isn't saying that the material world doesn't exist, only that it is ephemeral, constantly changing, and ultimately beyond our control, and that the only thing that lasts is the soul, which exists in all living things. Every designer knows that what we do in the material world will not last, that things deteriorate, break, or fall apart. And while we rarely talk about it this way, designers also know that the best work has a spirit or soul that we find compelling and that causes us to care.

What the Gita suggests for the design community is that what matters is the spirit in what we do: how much the work helps people feel whole and how much it speaks to the spirit in every living being affected by it. How does our work enhance the humanity not only of those who commission, use, or inhabit it, but also the humanity of those who fabricate, assemble, or build it, and those who will have the responsibility to care for, dispose, or reuse it after we have gone? And how does our work enhance the quality of life of other species – the habitat of plants and animals in the locations where what we use is harvested, where what we create is fabricated, or where what we design gets built?

Such an expansion of care may sound impossible. How can any designer attend to such dispersed impacts in so many different places, many of which may be far away or out of our control? We can never do so completely, but we can become conscious of it in everything we do and thus raise the consciousness of everyone else we deal with. Designers, like all who create the physical world in which we live, have incredible power simply by asking the right questions, and the single most important question we can ask of everything we do is: how does this best serve all? The paradoxical result of such a question is, because everything is connected and the soul pervades every living being, serving all is the best way to serve our clients and the users of what we design. The fundamental ethical responsibility of every professional is to do the right thing, and to do our duty to the best of our ability without regard to the fruits of our actions. The Gita simply asks that we not put limits on that: that we do, to the best of our ability, the most we can do for as many as possible. It may be the only way that we, like Arjuna, will survive the battles that lie ahead.

The Buddha offers another take on this ethical idea, putting less emphasis on serving others and more on being happy and avoiding suffering. Coming from a wealthy family, Buddha knew how much time and attention people paid to

earning money and acquiring goods as the way to happiness, but he also saw how much unhappiness – ranging from envy and jealousy to fear and anger – resulted from this very process of gaining possessions. After a period in which he tried to rid himself of all possessions to the point of almost starving himself, he realized that the problem lay not with things, but in our thinking about them. The suffering he saw around him came from our attachment to things, and in our inability to find peace of mind, the lack of which leads us to seek it in the external world. Controlling the mind, eliminating desire, needing nothing, resenting nothing, relinquishing all attachments, focusing on the present moment, having compassion for others, being generous and kind to others – such is some of the wise counsel that the Buddha offers as the way to happiness.

Underlying this is the ethical idea of 'the middle way', the notion that we should seek a path of moderation between the extremes of self-indulgence and self-mortification. That idea also occurs in the ethics of Aristotle and it represents a position quite contrary to the extremism of the modern world, in which extraordinary levels of wealth and poverty, over-consumption and deprivation, exist simultaneously. Nor is it the way in which most of the design world has gone over the last century. Most designers depend upon wealthy individuals, organizations, and governments for many of their commissions, resulting in designers directly serving a very small fraction of the total population. At the same time, the design community has tended to recognize and award work that stakes out an extreme position of one kind or another. Moderation in a project rarely gets covered in the media, rarely draws people's attention, or rarely attracts the kind of clients that designers sometimes assume is necessary to do good work.

On top of that, the Buddha's urging that we not be attached to things or not desire possessions also seems contrary to what designers do, which is to make things that other people need and want. Is Buddhism antithetical to design? The answer depends upon whether we are talking about current forms of design practice or about design generally. As E.F. Schumacher observed about economics in his development of 'Buddhist economics', design practice has come to reflect the world in which we work, a world in which, as the Buddha observed, many people continue to look at material possessions as the way to happiness, rather than to their own state of mind[7]. But there has always been design, and we need to discover a design equivalent to Schumacher's economics, a 'Buddhist design' that isn't about the design of

Buddhist temples or decorative arts, but is instead about imagining a form of design that leads to happiness through an embrace of humility, moderation, openness, and acceptance of limits.

Schumacher urged his fellow economists to re-establish their field on some basis other than greed and envy, which he saw as the unhealthy and unhappy motivators for so much economic activity. Designers need to do the same. While greed may lead people to want a larger house, a bigger office, or a flashier car, and while envy may lead people to commission work that exceeds in some way that of a competitor, such frames of mind arise out of unhappiness and, as the Buddha understood, can only result in unhappiness, which is hardly in the best interest of anyone, be it the designer or those who commission or use what we do. If the purpose of design is to relieve suffering, to improve the world and people's lot in it in some way, than continuing the cycle of suffering, as the Buddha describes it, renders what we do rather pointless, and possibly leads to the ironic result of design being less valued even as the desire for it increases. Like addicts, our culture has become hooked on the quantity of things, wanting more and more of what, in psychological terms, means less and less. 'Buddhist design' would refocus people away from quantities of things to the quality of each thing, showing us how we actually need much less than we think we do, so that we can enjoy each thing more.

In a sense, Buddhist design might be more like the natural world we see all around us. It might be made, like a forest, almost entirely of biodegradable materials that serve their purpose and then disappear without a trace. It might consist of materials, like rock, that can be endlessly reused by whoever needs it at the time. It might generate wastes, like a plant or animal, that serves as the food for others or fertilizer that enhances the richness of the whole. And it might use the least amount of material possible, like a bird, to achieve the greatest efficiency and beauty. The Buddha achieved enlightenment while meditating under a Bodhi tree and we, in the design community, might find similar insight contemplating nature in this way, seeing how we might help others, and ourselves, actually achieve the happiness that people turn to our work for. This will become especially important in the future, when the only real abundance most of us will have will lie inside ourselves.

A third ethics to arise out religion that can serve us as a useful tool is that of Jesus. It has become difficult to talk about Jesus' ethics because of the

current wave of fundamentalism and fanaticism that has emerged from all three of the major Western religions – Judaism, Islam, and Christianity. At a time when, as the writer and former nun, Karen Armstrong has argued, some people see religious texts like scientific facts, as having to be literally true in order to be believed, even talking about Jesus as a ethicist will offend some[8]. But so be it. As Thomas Jefferson did with his Bible, cutting out the metaphysics to get to the ethics of what Jesus said in the New Testament, let's look at what the ethical core of what Jesus said has to offer us as we look ahead to a world that may increasingly look like the world that Jesus knew some 2000 years ago[9].

What is most striking about Jesus' ethical pronouncements is how much they address the needs of the poor. Just as Krishna would urge us to serve others and the Buddha to relinquish attachments, Jesus would have us give up our wealth and share it with the most impoverished people. This radical realignment of wealth, of people voluntarily giving up most of what they own so that everyone could have enough, does seem to get lost in the conflation of Christianity with capitalism that has become common, at least among many conservatives in countries like the USA. It is hard not to read Jesus' pronouncement that the 'meek shall inherit the earth', and wonder about all the competition, aggression, and bloodshed that has characterized the behaviour of some Christians towards other religions or other denominations in their own religion[10]. As Karen Armstrong observed in an interview, 'religion... is about losing your ego... We need to rediscover what is in our religions, which have gotten overlaid with generations of egotistical and lazy theology. The current thinking – my God is better than your God – is highly irreligious'[11].

Many designers might be very sympathetic to Jesus' compassion for the poor and maybe even his urging that we give to the poor everything that we don't absolutely need in order to live, but design remains a field for the relatively well off and out of reach for most people who do not have the money to pay our fees. What the ethics of Jesus forces us to confront is the question of how design practice can serve the poor, the very people who need, even more than the wealthy, what designers have to offer: that capacity to do more with less, to satisfy the greatest number of needs with the least amount of effort or resources. One way to achieve this would be to see design as a form of public health, which is similar to the way in which Jesus saw his role as ministering to the people that the government and established religion of his day had forgotten.

A public health version of design would entail dealing with the problems that the greatest number of people, especially the greatest number of poor people, face in their daily lives. Cameron Sinclair, whose organization, Architecture for Humanity, has come perhaps the closest to achieving such a goal, once said that the one thing most people around the world seem to need most is a way of fastening different kinds of materials together[12]. Poor people often can get access to cast-off or low-cost building supplies, but connecting materials together in ways that keep out the elements or withstand the wind or possible earthquakes poses a real and largely unaddressed problem. The same is true of people's need for basic services – water and electrical supply, sanitary and storm sewage, security and safety elements. The poorest people lack such essentials, access to which should be a fundamental human right. That billions of people lack one or more of those basic services – access to clean water, to sanitation, to electricity, to security – is something that the design community should take on as both our responsibility and an opportunity. Public health designers, able to address the simplest and most generic challenges in extremely low-cost and low-skill ways, would have billions of people around the globe as users, with governments and non-profit agencies of all types as clients. If designers do not literally give, as Jesus suggests, their second coat to the poor, we can at least give the poor our best thinking and most creative ideas.

As Jesus knew well, giving of our time and talent to those most in need will have a transformative effect on us as well as them. That transformation might lead at least some designers to take on, not just the objects and environments people need, but also the processes by which materials get made, products get produced, and supplies get shipped – all with the goal of maximizing local economies, developing local skills, and minimizing environmental impacts. We could help end poverty simply by requiring that everything we use be made locally and sustainably. At the same time, the transformation might prompt us to design into our work the process by which it will be deconstructed, recycled, or repurposed, all of which can empower ordinary people and leverage their inherent creativity. The design community must find a way to serve the poor in more than token ways. It is not just our professional and ethical responsibility to do so, but it is the great-untapped opportunity of our disciplines. For what Jesus said was prophetic: the long-term stewards of the planet, those who will inherit the earth, are the very people who are most ignored and least served by us today. And if the rest of us continue in our excessive levels of consumption, we will all be like them soon enough.

A fourth ethics, not specifically religious, but with a strongly metaphysical character, is that of the seventeenth century Jewish philosopher, Spinoza. He argued in his *Ethics* that everything – every being, every particle, the cosmos itself – is one substance, which he called God/Nature, with physical and mental attributes, and existing in an almost infinite number of modes[13]. Spinoza's ethics sounds odd at first, and so abstract that only a philosopher might appreciate it, but the more you think about his ideas, the more they open up connections for us. For example, the notion of reality as a single substance brings to mind the work of modern-day physicists who see matter and energy as different modes of the same thing, existing at different speeds. Spinoza's ethics also anticipated those who search for the so-called theory of everything, in the belief that all reality must follow the same physical laws. In calling this single substance God/Nature, Spinoza elides past the divide that exists in our own time between religion and science by claiming that God and Nature are really the same thing and that God is not some transcendent intelligent designer outside of the natural world but is immanent in and inseparable from nature. No wonder Spinoza got in trouble with Jewish authorities in his own day, for his theistic views were much closer to the pantheism of the ancient Greeks than to anything in the Old Testament.

The ethical implications of Spinoza's one substance also conflict with the dichotomous world view so prevalent today and around which we have designed our built environment. Spinoza argued that unethical behaviour begins with the assumption that individuals or groups are separate from each other and that there is some advantage to be had over others. By denying the validity of that very assumption, Spinoza's ethics make it impossible or at least completely self-destructive to cause harm to others, for in so doing we only harm ourselves, since they are us, all part of a single, inseparable substance. Complexity theory has made a similar argument about the physical world – that everything, at least on earth, is interconnected so that the proverbial butterfly flapping its wings can contribute to causing a hurricane halfway around the world. Spinoza's ethics applies a related concept to human actions: everything that we do comes back to affect us. We may not see it or know how or when it happens. It may not happen immediately or in the same way in which we acted toward others, but our being of one substance makes it impossible for us not to be negatively affected by our negative actions – or positively affected by our positive ones.

Spinoza's one-substance idea also applies to the natural world, so that the damage we cause to nature, we cause to ourselves as well as to God,

which he saw as identical with nature. If we accept Spinoza's premise, the only conclusion we can draw from it is that we need to act in ways that help, improve, or enhance others – other people, other species, future generations – for there is no other way to help ourselves. That conception of service, of finding our happiness by fostering happiness in others, lies at the heart of all helping professions and offers a model for a very different way of thinking about economics. Instead of an economy based on self-interest – which in Spinoza's terms might mean self-harm – we might imagine an economy based on other-interest, on giving as much as possible to as many others as we can. This notion of a 'gift' economy, in which value and incentives involve how much we give rather than how much we get, may work best at relatively small scales, among families, tribes, or communities, but that may be the scale in which many of us live in the future, once we run out of the inexpensive fossil fuels that have so expanded the scale of modern life. The gift economy also seems well suited to the internet age, in which people give information or advice with no quid pro quo, and where millions of people have access to and benefit from what others have to offer. Indeed, we might see the world wide web as a Spinozan infrastructure, one of many ways in which we come to see ourselves and act as a single interconnected mutually reinforcing entity.

Infrastructure like that may also require a new mythology, a new story about our relationship as human beings to each other, to nature, and to being itself. As the critic Northrop Frye put it, 'there have been two primary mythological constructions in Western culture... In the older mythology... Man was a subject confronting a nature set over against him. Both man and nature were creatures of God, and were united by that fact'[14]. That older mythology was eventually replaced by a newer one based on 'the conviction that man had created his own civilization'. Frye continues with a discussion of design. 'A major principle of the older mythology was the correspondence of human reason with the design and purpose in nature it perceives'. In the new mythology, 'design in nature has been increasingly interpreted by science as a product of a self-serving nature... The rational design that nature reflects is in the human mind only'.

Those two mythologies of the West have had major implications for the way in which we live. The first mythology culminated in eighteenth-century Europe, in cities characterized by elaborate social rituals, religious celebrations, and public displays, underpinned by technology that had changed little in thousands of years, powered mainly by natural means such as water or

wind or by renewable resources such as wood. This contrast between social and spiritual elaboration and technological simplicity expressed the first mythology's simultaneous sense of celebration and humility that arises from a belief that humans and nature come from God, who transcends both. And yet, as the historian Marcel Gauchet has argued, the distancing of humans from God, which came with monotheistic religions, also led to the sense that people are free to believe – and to live – as they choose, which prepared the way for Frye's second mythology[15].

The second mythology – that we live in a human-created world – may have reached it peak in twentieth-century North America. It reversed many of the features of life under the first mythology, with most social life now occurring in the private realm along with widespread abandonment of and disinvestment in the public realm[16]. At the same, technology became a focus of invention and investment, fuelled largely by non-renewable and highly polluting fossil fuels[17]. With this second mythology, and the 'disenchantment' of nature, Western culture acted as if it had free reign to exploit nature as a resource for our use, to employ all means possible to increase our comfort and power, and to defy what the earlier mythology saw as natural limits on how fast humans can travel, how far our reach should extend, and how much information we can absorb at one time.

Northrop Frye argues that the second mythology has largely replaced the first. As he put it, 'contemporary science, which is professionally concerned with nature, does not see in the ancient mother-goddess the Wisdom which was the bride of a superhuman creator. What it sees rather is a confused old beldame who has got where she has through a remarkable obstinacy in adhering to trial and error – mostly error-procedures'. While Frye isn't disputing evolution, he does capture the simultaneous concern with and exploitation of nature that we see in modern science and technology, treating nature not as our mother deserving our respect and reverence, but as an 'old beldame' we can dismiss or exploit at will. Frye argued that one mythology replaced the other, but it may be more the case that the first mythology and then the second have simply become more or less dominant, with the recessive myth becoming the basis for resistance, a place from which to protest as the opposition.

When viewed in this way, both of the mythologies that Frye describes represent not a polarity, but two different versions of the same idea, an idea that looks increasingly unsustainable at the beginning of the twenty-first

century. In both of the mythologies of the West, humans occupy a place separate from nature. In the first mythology, humans and nature come from God but remain separate creations, while in the second mythology, humans and the rest of the natural world stand apart, the result of their own evolutionary development. It may be that, as we begin this new century, we also need a new mythology, one that challenges the separation of humans from nature, regardless of whether one is a creationist or a Darwinist.

This sense of separation from nature, either because we see ourselves standing humbly 'over against it' or because we have assumed an almost divine control over it, has had dire consequences for humans as well as many other species. Rather than see our ability to alter nature as a reason to become protectors of it, good stewards of all that we depend on in this world, humans have caused the so-called 'sixth extinction' on the earth, with species disappearing at an increasingly rapid rate because of the affect we have had on habitats and ecologies. We can fool ourselves into thinking that because we are separate from nature, we won't be affected much by the likelihood that half of all the species of the planet will be gone in 100 years, but we are fools if we do[18]. Nor should we kid ourselves that this is just a natural cycle. Humans now use almost half of all the energy available for sustaining life on the planet. Indeed, as the biologists James Brown and Brian Enquist, and the physicist Geoffrey West, have shown, the average human now consumes energy at the rate of a blue whale, which, if we imagine a world overrun by over 6 billion blue whales, helps explain why humans are pushing so many other species to extinction[19]. According to their theory of biological scaling, individual humans should be consuming energy a bit more than a goat and somewhat less than a horse or cow, so our energy appetite is killing us, along with many other organisms with us[20].

How might we make this transformation to a third mythology, to one that refuses to separate humans from nature? In a study done by the Center for the Study of Social Policy entitled *Changing Images of Man*, its several authors define this transition moving from a 'technological extrapolationist' future to an 'evolutionary transformational' one[21]. The first of these amounts to a continuation of our current trajectory, characterized by concentration of economic and political power, rapid accumulation of scientific and technological knowledge, increasing dependence on 'knowledge elites', increasingly secular habits of mind, a dominance of utilitarian ethics, and the growth of cities into 'megapolitan' areas. Recognizing the unsustainability

of that future and the rise of a 'post-industrial' society, an ecological sensibility, and an ethic of self-realization, the authors posit an 'evolutionary transformational' alternative. Such a future would involve a de-concentration of economic and political power, moral constraints on technological progress, more participatory decision-making, a stabilized population, a more balanced view of ethics, and decentralized and more diverse ways of living.

But, as Frye noted, mythologies involve a transformation in belief as well as political, economic, and social change. A belief system that might have the greatest chance of leading us towards an 'evolutionary transformational' future was best summarized in Aldous Huxley in his anthology *The Perennial Philosophy*, a book that finds a common thread through all of the major religious traditions[22]. That common thread is based on the idea that God is not just transcendent, but immanent, not just up there, but in here, in all things and in all of us, regardless of our racial, ethnic, cultural, or religious differences. According to this 'perennial philosophy', we are inseparable from each other or from the natural world, the spark of divinity exists in each of us as well as in all living beings, and we are all part of 'one divine Reality [underlying]... the manifold world of things, and lives and minds', as Huxley puts it. Behind this lies a heightened conscious of our connections to all things in the cosmos, to the effect we have on others, to the consequences of our actions, and to our nature as beings that transcends our particular circumstances.

Huxley called it 'perennial' because this view of the world is ancient, first formulated in the Vedic era in India around 1500 BC. It has also continued to thrive as a belief system, especially in many non-Western cultures, even though it has often been obscured by the more recent Western mythologies Frye describes. What might the world be like under such a belief system? Non-Western vernacular settlements suggest what life might be like under this very old and yet possibly very new 'third' mythology. Useful objects would mostly come from locally available materials and be made with local labour. Housing would consist mostly of low-scale structures, again using local materials, with natural cooling and heating determining much of the form. And settlements would remain fairly condensed in scale and dimension, with ready access to agricultural land and open space, with key natural resources carefully stewarded.

Rather than see this third mythology as separate from the two Western mythologies or as a complete substitute for them, we need to see the new

mythology as embracing all that has come before. There is a practical reason for this, since a mythology only exists if it can move large numbers of people to act in new ways. The rise of a new mythology takes centuries, as Frye observes with the second of the mythologies he describes. For people across many different types of cultures to embrace a new mythology, it must remain familiar enough to be credible and yet different enough to lead to meaningful change. This also stems from the new mythology itself. As Huxley quotes the Roman philosopher, Plotinus[23], we should 'see all things, not in process of becoming, but in Being, and see themselves in the other. Each being contains in itself the whole intelligible world'. If the ultimate reality behind all difference is this oneness, then that must be true of our mythologies: behind their diversity lies unity. It is that which the 'third' mythology seeks to find.

The West has had a long tradition of thinking in this way. That tradition not only includes Plotinus, but medieval thinkers such as Saint Francis, early modern philosophers such as Spinoza, Transcendentalists such as Henry David Thoreau, and deep ecologists such as Arne Naess and environmental theologians such as Thomas Berry. In each case, these Western thinkers saw the world itself and all that occupies it as sacred, interrelated, and inseparable from ourselves. When we harm others, we only harm ourselves. Damage something else, and we damage ourselves. They all faced the criticism of those who see a kind of muddle in this idea of oneness, and if we take the idea too literally, the critics have a point. But underlying this perennial philosophy exists the acceptance of paradox: that everything in nature can be the same and different at the same time, transcendent and immanent all at once, and mortal and eternal simultaneously.

Among other things, this perennial philosophy offers a way of resolving one of the conflicts between the two older mythologies: the debate between the advocates of intelligent design and of evolution. The believers in the first mythology tend to argue in favour of intelligent design, seeing design as the result of a cosmic creator and the intricate and interdependent qualities of the natural world as proof that an intelligent being 'designed' it. The believers in the second mythology, those who marshal ample evidence to prove evolution, see nature as the result of a more-or-less blind process of selection over very long periods of time. Since they too see a designer as an intelligent being controlling a process, they argue that the evolutionary process proves that no such cosmic designer exists. In other words, while the two mythologies are

diametrically opposed on the question of nature's origin, they agree on the definition of a designer as a being in control of creating things.

The third mythology, the 'evolutionary transformational' alternative embedded in Huxley's perennial philosophy, seems to arise from a very different conception of design, one that is not just something done by an intelligent being, but also by all living beings at all scales in response to changing circumstances. From that perspective, design of a sort occurs in evolutionary processes as well as intentional ones, in the adaptation of species as well as in the imagination of individual humans. This accords more closely to how design actually occurs. It involves both people and process, intentions and accidents, intelligence and blind luck. It occurs not just at the hands of designers, but as part of the input of everyone involved in a process, with myriad decisions being made by many participants in response to new information or changing conditions. It is evolutionary and transformational at the same time.

If design can help us understand this third mythology, what effect might this perspective, in turn, have on design? What kind of physical world would this third mythology lead to and what difference would that make? This question underlies the very reason why we need to find a way past the two dominant mythologies of the West, for they have created a world that is environmentally unsustainable, as humans collectively use resources at a much greater rate than they can be replenished or stewarded for the use of future generations. At the same time, we have created a world in which we view other cultures as separate from or as a danger to ourselves, and other species as either a means or an obstacle to our convenience or comfort. Design has facilitated this view of the world by giving us the technologies and built environments that keep us apart from the natural world and from the consequences of our actions on other species or future generations. At the same time, design serves to convince us of the rightness of this, normalizing behaviour that even people just a few generations ago would recognize as irresponsible and unsustainable.

But, if design is part of the problem, it can also serve as part of the solution to the dilemmas we face. The third mythology rests on a few principles key to the design enterprise: seeing ourselves as an integral part of the natural world, valuing all beings and all things as sacred, helping others as the only way to personal happiness, and embracing external constraints for inner freedom. Some may see those principles as impossible to achieve. We always affect

the material world when we act, needing to consume food and resources in order to live or have energy sources in order to work. Others may see these principles as harmful to what many see as essential to human's thriving, thinking that the health of our economy, our communities, and our families demands that we sacrifice other species, use resources as we see fit, and protect ourselves from others who want what we have. But this is precisely why we need a new mythology, since such negative reactions stem from one of the other mythologies that have dominated Western culture for centuries. Once we shift our mindset and see the world and ourselves in terms of a new myth, we can achieve all that we currently value, but in ways that we can sustain without exhausting essential resources, exploiting other cultures, and leading to the extinction of other species.

The role that design can play here is not to reinforce our prior beliefs, the old mythologies, but help us see a possible future with the new mythology, demonstrating that the latter, rather than being a step backward to some primitive past, constitutes a higher evolution. In that sense, this third mythology of the West doesn't entail a radical departure for Western culture, but rather a more honest and humble interpretation of it. The harm caused by our hubris, the perils of overweening power, the short-sightedness of acting only out of self-interest – these ideas have long been a centrepiece of Western art and literature, which we have appreciated and applauded, but then proceeded to act as if we are immune to them in our daily lives. The third mythology simply holds the West accountable, envisioning a world in which humans are both a part of and stewards of nature.

And the ethics of service we find in the Gita, the ethics of detachment we hear from the Buddha, the ethics of giving we receive from Jesus, and the ethics of oneness we read in Spinoza are among the ways we can begin to bring this third mythology into being, one that will enable us to sustain ourselves more effectively on this planet in the face of dramatic changes in our world. And while we need to continue to respect the previous two mythologies, we also need to see that our continuing to think in their terms will make it very hard for us to survive what lies ahead. This is as true for science as it is for religion, for both hold part of the solution to the problems we face, but both also are part of the reason why we face them in the first place.

As the writer Curtis White argued in a recent essay in *Harper's* magazine, by continuing to use the language of science and instrumental rationality

in understanding and describing the natural world, ecologists end up, unintentionally, reinforcing the very forces of global capitalism destroying the environment. Instead, White argues:

> Environmentalism should stop depending on its alliance with science for its sense of itself. It should look to create a common language of care (a reverence for and a commitment to the astonishing fact of Being) through which it could begin to create alternative principles by which we might live... [which] would begin with three questions. First, what does it mean to be a human being? Second, what is my relation to other human beings? And third, what is my relation to Being as such, the ongoing miracle that there is something rather than nothing?... [If] we answer that there should be a greater sense of self-worth in being a human, more justice in our relation to others, and more reverence for Being, then we must either live in bad faith with capitalism or begin describing a future whose fundamental values and whose daily activities are radically different from what we currently endure. The risk I propose is simply a return to our nobility... We should insist on a recognition of the mystery, the miracle, and the dignity of things, from frogs to forests, simply because they are. Such a 'religion' would entail a refusal to play through to the bloody end the social and economic roles into which we happen to have been born. What lies beyond the environmental movement is not only the overcoming of capitalism, but self-overcoming[24].

This new 'religion' will need to draw from the ethical ideas buried in older ones and from the scientific understanding of sciences like ecology, but it will have to be different from both, and radically different from the values that now drive humans to do so much damage to the very planet we depend on for our survival. We have designed the dysfunctional systems and places we now occupy, and we desperately need to design new ones, based on a new understanding not only of design, but of ourselves, our relations to others, and of Being itself.

PLACES

Cemetery

Call a person wise when all his undertakings are free from anxiety about results.

— Krishna

I have lived through several wars, and I wonder what any of them have won us? Has all the loss of life from war really made a difference? Is the world any safer than it was fifty years ago? The answers depend upon who answers them, for war has always been largely a war, not between enemies, but between generations, with mostly older men on both sides sending younger men – and now younger women – off to die. This has been justified in the past by the physical effort of fighting a battle, but with modern technology,

the manual labour involved has diminished to a point where it highlights the reality of war as a kind of generational cleansing.

Is war simply a matter of older men using their political power to reduce the number of physically capable competitors, or is it more the case of older men wanting to extend their diminishing physical power by living out their fantasies through able-bodied youth? Such thoughts seem like heresy to all who think of war as a noble act of patriotism, but in his essay 'On War, Sex, and Neurosis', Freud observed how 'the warring state permits itself every misdeed, every such act of violence, as would disgrace the individual man'[25]. What would disgust most of us as individuals – watching older people order mostly younger people to their death – we accept as a necessary act of nationhood.

This is not a recent struggle. In the Bhagavad-Gita, the Hindu God, Krishna, offers two related ideas relevant to war: the necessity of doing our duty and of acting without concern about the fruits of our actions. These two ideas, coupled together, form the basis of a happy life, one lived without anxiety or ego. But war shows how one – doing our duty – can also serve as a cover for our ignoring the need to act without concern for its fruits.

How many young men go off to war out of duty, prompted by the pronouncements of glory by an older generation? In many ways, these soldiers do their duty without concern for the consequences, which may include the loss of life. Krishna advises us not to confuse our ephemeral physical life with his eternal spiritual one, and the same could be said of everyone lost in battle: their bodies die, but their memory and meaning to others remains. But no such solace serves those who send young people off; for the politicians and their generals, war is all about its fruits, all about the calculation of what it takes to win and how much power or control it will bring. In this light, the duty of some serves the selfishness of others.

Military cemeteries, with their regular rows of graves and pure-white markers, make war seem rational, orderly, and noble. But, as so often happens, we use physical reality to conceal the real psychological one. Sending our younger people to war at the behest of the older ones, endangering those with the most promise because of decisions by those with the least to lose, represents a kind of inverse Darwinism, in which the least fit rig the system so that they survive.

Instead, were we to take Krishna's advice to heart, we would have those whose policies lead us into war also take the lead position on the front lines. Let the politicians dutifully face the consequences of their decisions; the grave lies not too far in the future for most of them anyway. We might see one of two things with this. The real leaders, the truly wise ones, would take their posts at the front of the battle, without anxiety about the results, seeing it as their duty. But most of the rest might begin to work much harder on finding alternatives to war, ending the insanity of the generational cleansing that remains the suppressed, subconscious side of war.

Mounds

> *The Earth is our Mother. She nourishes us. That which we put into the ground she returns to us.*
>
> — Big Thunder (Bedagi) Wabanaki Algonquin

My father died recently and as we had him cremated, I thought how much the way we die says a lot about how we live. Most human societies bury or cremate their dead, returning the body to the earth from which most of its elements – its carbon, calcium, and water – ultimately came. But Western societies have seen the person, while alive, as separate from and dominant over the earth, declaring it our property and taking it as our right to extract from it what we want. So damaging has that idea been to the planet that it is amazing the earth still takes us back when buried, like a parent taking in the rebellious and resentful child despite the latter's repeated insults and injuries.

Native Americans have had a very different relationship with the earth, evident in how they treated it when dead and alive. Their burial mounds, for

example, often stood at key locations, at a bend in a river or by a natural spring or waterfall, expressing the ability of native people to read the most telling features of the landscape, the face of the earth. Likewise, these mounds did not single out individuals, but consisted of layers of bodies, buried like geological strata in a representation of how the earth itself is organized. And the mounds themselves nearly disappear in the landscape, without the fanfare and monumentality that often accompanies the sites of Western burial.

As they died, so too did they live. William Commanda, the Canadian Algonquin Elder, notes that native people see in Western culture two roads, the road to technology and the road to spirituality. 'We feel that the road to technology', he says, 'has led modern society to a damaged and seared earth. Could it be that the road to technology represents a rush to destruction, and that the road to spirituality represents the slower path that the traditional native people have traveled and are now seeking again? The earth is not scorched on this trail. The grass is still growing there'[26].

The modern West has gone down the road of technology for so long that we can hardly imagine another path, such as the native one of seeing the earth in spiritual terms. We have become so accustomed to treating private property as sacred that we react in fear or anger to any suggestion that the earth has never been ours to own. Appropriating the earth as our property comes from our dehumanizing the planet, an essential step in going down the road of technology.

Were we to take but one step in another direction and think of the earth as we do our mothers, we would find ourselves going down a very different road, the one that our most ancient ancestors took. With that one move, almost everything else we do to the planet becomes absurd. We wouldn't claim ownership of it any more than we would claim to own a parent. We wouldn't rape the planet, pollute it, exhaust or exploit it, any more than we would the woman who gave us birth. And we would see anyone who did so as the psychopaths they truly are – and what we have truly become towards mother earth.

Native burial mounds, standing in mute testament to a world view so different from our own, offer us a perspective from which to see the strangeness of Western existence. Isn't it strange how much energy and effort we put into resisting and defying nature, even though we know the futility of our actions

in the face of the next tornado, hurricane, or flood? And isn't it odd how much space and time we give to ordering and tending to nature, even though we know it will outlast us and return to the more sophisticated order of the wilderness? Once we see the peculiarity of what we consider normal, we can start to create new norms. Ancient burial mounds offer a place to begin: in understanding how native people died, we might come to see other roads we might take, other ways in which we might live.

Temple

To study the self is to forget the self.

— Dogen

When I lived in Ohio, I liked to visit an Amish town called Mesopotamia, a place infused with a quiet and quite sobering spirituality. What I love about the Amish is how they reveal the often unrecognized and unholy connection between most organized religions and technology. If we think of technology not just as the machines and methods of industry, but also as the study of techniques, then technology, as the philosopher William Barrett argued in *The Illusion of Technique*, applies to any set of rules that lead large groups of people to act in organized ways towards particular ends[27]. All religions have such rules: doctrines and dogmas that they instill in their adherents and practices and procedures that they expect believers to follow. When intended to further our spiritual growth, such techniques are fine, even necessary. But when applied to political ends, as we have seen in the large number of

religiously based conflicts going on in the world today, the rules of religion can be as devastating as the most polluting technology.

This suggests that the road to spirituality, to a healthier and more sustainable relationship among humans and with the rest of the planet, lies in a somewhat different direction than that of most religions and most politics. It may begin, paradoxically, with the self. The paradox here lies in the fact that much of the destructiveness that has occurred along the road to technology has resulted from the selfish uses to which people have put our study of techniques. In modern technological societies, the self has become a kind of god, in which so much of what we do centres on maximizing our pleasure, extending our power, and elevating our status as individuals. This self-centredness has pervaded not just our politics and popular culture, but even institutions like organized religion, which once stood as bulwarks against the inordinately selfish behaviour and which now has millionaire preachers.

It is one thing to centre the self and quite another to be self-centred. We need to study the self, as the Zen master Dogen put it, in order to transcend the self, to see how our self remains intertwined with and inseparable from all other selves alive and those who have yet to be born. Seen from that perspective, the best way to attend to the self involves acting as unselfishly as we can, since, in harming others, we end up harming ourselves, and in helping others, we help ourselves. This sounds terribly idealistic and it runs into the same criticism that faced Kant, when he argued that we all have an ethical duty – a categorical imperative – to treat others as ends in themselves and not means to our ends[28]. What are the consequences in not obeying that duty, Kant's critics asked?

Kant used reason to defend duty. Reason, however, is a necessary but not a sufficient tool, since reason involves the dividing up and categorizing of reality. We also need the tools of ecology, which show us how everything in the world remains connected to and affected by each other. We often cannot see this interconnectedness, which is why so many people act in unethical or illegal ways, thinking that they will get away with whatever they have done. But they won't, not just in an afterlife or a next life, as religions have argued, but in their own life, at the very moment of the wrongful act, since the supposed advantage they take or selfish harm they inflict only damages the interconnected web they, too, depend upon.

Seeing this unseen connectedness takes practice, 'spiritual practice' as the philosopher Pierre Hadot calls it: the daily contemplation of, meditation upon, and dialogue about the relationship of every person, action, or object to the whole, to the ultimate oneness of reality of which we are all a part[29]. That practice leads us down the road to spirituality, a road that is open to all of us, if we simply take the first step and, as Dogen said, forget the self.

Cathedral

> *For what profit is it to a man if he gains the whole world, and loses his own soul?*
>
> — Matthew

Although I am terrible at mathematics, profit seems simple enough, even to me. Whenever we get more in return than we expend, we profit. But even with my mathematics-addled brain, I can see that we rarely calculate profit correctly, and as a result, we rarely profit from what we do. This certainly doesn't sound right to the millions who live by the bottom lines on their spreadsheets or who count the growing balance in their chequebooks; isn't that profit? Yes and no. Viewed in isolation, it might seem that way, but seen in a wider context, most of what we see as profit represents loss, not just to someone else, but also to ourselves.

Religions remind us of this, although they sometimes don't apply their own lessons to themselves. While officially 'non-profits', many churches – and on

occasion their charismatic leaders – have become extremely wealthy, based on the power and popularity of their message. The irony in this, of course, is that virtually every religion counsels us to not confuse profit and purpose, and to see that the only true profit comes not in the form of money, but in how much we have helped others before ourselves. Many in business might not disagree. After all, the utilitarian ethics that so dominates the world of commerce does seek the greatest good for the greatest number. In that sense, profit, in the form of money, simply marks the extent to which a company has satisfied, most efficiently, the greatest number of customers.

But this is where simple profit gets more complicated, for what constitutes the 'greatest good' and who comprises the 'greatest number'? We often equate the good with what most people want or will buy, even though we know that many things people crave, from corn syrup to cigarettes to cocaine, are anything but good for them. The greatest good – that which makes us most happy and healthy – involves not getting what we want, but to give to others as much as we are able.

Likewise, the greatest number, as the philosopher Peter Singer has observed, has to extend beyond customers, or even all humans, to include all species, whose existence not only has value in its own right, but value to us in terms of everything from food to medicine[30]. And yet we stand here, driving huge numbers of species into extinction as we create monocultures of a relatively small number of plants and animals at the expense of all the rest. Is it profit when a relatively few benefit by providing goods that are neither good for people nor good for the planet? And do those few really profit, when, as Mathew says in the *Bible*, they gain the whole world and lose their soul?

Such sentiments may seem too tender-hearted, soft-headed, and thin-skinned to some, but they are anything but that. It is easy to act tough, appear brave, and push others around, and any profit gathered through such cowardly action benefits no one, least of all the profiteer. The hard part comes in seeing profit in the broadest frame, acting in ways that are truly good for the absolutely greatest number. If there is value in the large spaces churches provide, it comes not in our ogling all their ornament, but in reminding all who gather there that we have responsibilities for each other and for all others.

For profit lies not in how much we get, but how much we give. We often think of philanthropy – the 'love of humankind' – as something for only the very

rich. But the only real profit, that which benefits the soul, lies in philanthropy, whether measured in terms of the giving of our money, the lending of a hand, or sharing of our possessions. For that, we need a different kind of accounting, one that tallies the total goodwill our actions have accrued, and the total number of species and ecosystems that benefit from our efforts. That would be a spreadsheet with which we could excel.

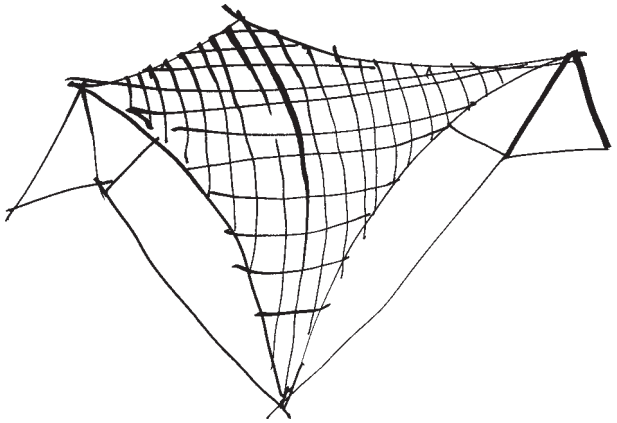
PRINCIPLES

Instead of consuming things, treat everything as sacred

The idea of seeing the world as sacred has a long history in most human cultures, as does the idea of nature as a resource for our use. The latter, deeply embedded in the Judeo-Christian tradition, has prevailed, so much so that it sounds strange to most of us to think of the world as anything other that here to serve us. Yet we all know that the planet we occupy is finite, with the atmosphere we depend on a thin covering, easily damaged. That we can still act as if nature, especially at this late date, were an infinite resource makes it seem like a game of musical chairs at a global scale, in which billions of beings get left standing without a place at the environmental table. The ethics of this are deeply troubling, as are the pragmatics of this. We obviously cannot keep increasing our rates of resource consumption, rates of growth, and rates of population increase within a finite system before coming to some sort of fall. Nor can those who have the power to change this situation assume that they will be immune from the effects of whatever happens, since there is no other planet to escape to when we exhaust some of the critical components of this one. What this situation demands of us is not just a

lessoning of our rates of consumption, which just takes us to the edge of the cliff more slowly, but a rethinking of how we see things and a return to the very old and seemingly odd idea of seeing the world and everyone and everything in it as sacred. With such a mindset, we would stop making things cheaply and throwing them away quickly, and would, instead, start making things carefully, thoughtfully, and in ways that will last. We would stop making disposables and start making heirlooms, much as our ancestors did for us. And we would stop being so mindless about the world and start caring for it and for what we do in it. Addicted as many of us are to the rapid and unsustainable consumption of resources, an ethic of care might seem gloomy or grim, but it would simply return us to the way in which humans have lived, happily, for most of our existence as a species. 'Grim' may, indeed, be how future generations describe us.

Instead of wanting more, seek doing with less



Henry David Thoreau once said that 'a man is rich in proportion to the number of things he can afford to let alone', and that applies to designers and those who we design for as well[31]. Of course, design often starts with a perceived need by a person or group who want more – more space, more product, more profit – and so it seems paradoxical to want less while dealing with more. However, as Mies van der Rohe indicated with his famous quip that 'less is more', modern design has long explored the tension between the two, looking for ways to reduce, simplify, or eliminate, even as it participated in making more things. That does not mean that modernism had people do without. What it discarded as superfluous, it often made up for with luxurious materials and ample space, suggesting that what Mies really meant was 'less of some things in order to have more of others'. Still, Thoreau's insight remains latent in contemporary culture – the idea that true wealth lies not in having more, but in needing less – and design offers one of the most powerful ways of exploring that idea. Every time we ask a client or community what they need, it is an opportunity to ask what they can do without or with less of than they had assumed. Such questions can help ensure that we do not do more, use more, or spend more than we need to, which is good for clients and also good for the planet. Designers can also show how to meet those needs that we do deem essential in ways that use the fewest resources most effectively. This, in turn, demonstrates the real value of design, which becomes most useful the less we have to work with. It isn't just modern design that brings such

value, but design thinking itself. A popular misperception of design is that it costs money and is too expensive for anyone other than the very rich. But real design – the kind of design we need to aspire to and constantly seek to attain – does just the opposite: helping us understand what it means to be wealthy by needing less, to be rich in proportion to the number of things we can let alone.

Chapter 4

When virtues are no vice

An architect, at a lecture recently at my school, told a story about his early career, recalling how a couple who owned a heavily wooded piece of land commissioned him to design their house. In the process, they spoke of their desire to cut down most of the trees for the revenue that amount of wood would bring them as well for the views of the water it would create. The architect tried to talk them out of it and they seemed to relent, until, one day, he drove by the site and saw that the clients had ignored him and had the trees cut down, at which point he returned to his office and called the clients to say that he quit the commission. That event, he said, altered the rest of his

career, convincing him that, from that moment on, he would design with the good of the natural world as well as that of his clients in mind. By all accounts as well as from the evidence of his own work, he has had a very successful career following that path.

His story raises a number of ethical issues, however. Should he have quit the commission or tried to convince the clients to reforest the site and repair the damage they had done? Should the architect that the clients subsequently hired to finish their project have taken the commission or, like his colleague, refused to work for those who had caused so much harm on their site? Such questions about that specific case raise other, more general ones. What responsibility do we as professionals have to ourselves as opposed to those we serve, be they clients, communities, or colleagues? Should we suppress our values in favour of others, try to convince others of the rightness of what we believe, or walk away from the situation? Is there another option, one that transcends the apparent conflict? Does design offer a way of overcoming differences, involving not just the aesthetic resolution of space and form, but also the ethical resolution of conflicting values? What do we gain and lose with every decision, and how do we weigh the costs and benefits of whichever way we go?

Behind such questions lies the subject of virtue ethics, which argues that ethics begins with having a good character, arising from the classical virtues of justice, courage, temperance, and prudence; from the so-called theological virtues of faith, hope, charity, and love; and from more modern virtues such as fidelity, humility, simplicity, compassion, tolerance, acceptance, honesty, and respect. It's a long list and no one can be all of them all the time. But virtue ethics offers a kind of map that can guide us when questions of character confront us, as they did that architect when he saw the duplicity of his clients. A virtuous characters comes from knowing the good, as Plato would say, and from a habit of doing good, as Aristotle argued.

The architects story reminds us of how often we encounter situations in which others would have us do things against our best judgement about what we think is right. All of us have probably faced at some points in our lives, instances in which others want us to help them cheat, or to not say anything if we catch them cheating; occurrences in which a group of people want us to go along with them in doing something we disagree with or know to be destructive (or self-destructive) in some way; and examples in which

we have done something objectionable because it is what others expect of us or accept among themselves. Virtue ethics reminds us that we ultimately have only ourselves to blame for unjust, cowardly, imprudent, ill-tempered, uncharitable, unfaithful, dishonest, intolerant, and disrespectful behaviour. And virtue ethics encourages us to act according to the dictates of our good conscious, however much that might appear counter to our self-interest, and to take responsibility for the effect our behaviour has on others.

All virtue stems from a paradox: to be virtuous, we have to acknowledge the lack of virtue in others as well as in ourselves. To be tolerant, we have to acknowledge (but resist) intolerance; to be just, we have to acknowledge (but resist) injustice; and so on. To *not* do so is to make the same ethical mistake: acting as un-virtuous as those whom we'd like to see act more virtuously. If I can't stand someone else's intolerance (or their tolerance of things I don't like), I become intolerant. If I am unfair to others who are unjust (or just about things I disagree), I become unjust.

Rather than try to impose virtue on those who do not have it, we should instead try to model the behaviour we would want others to use with us. For one measure of virtue is how well a person can see the world from the perspective of another. Just as we would not want to see the un-virtuous – thieves, liars, murderers – impose their lack of virtue on others, neither should we want the virtuous to do so. Indeed, it may be because of well-intentioned attempts at the imposition of virtue that has given virtue such a bad name. Those who lack virtue do so, said Plato, out of an ignorance of the consequences of their being that way – whether it be a prison term at one extreme or a disgusted architect at another. We all have to learn the consequences of bad behaviour on our own, and all that others can do is provide the knowledge, create the environment, and have the patience for us to learn for ourselves the value of virtue.

One of the lessons that can come from that is an understanding of the interconnectedness of all things. I am wise to be tolerant of others because, if not, I breed intolerance in others, which comes back as intolerance of me; I am wise to be just because, if not, I breed injustice in others, which comes back as injustice towards me. Because I cannot always see the full consequences of what I do, because I may be mistaken as to the most virtuous course of action I might take, or because I may lack some virtues, such as prudence or courage, I may act in un-virtuous – unjust, intolerant, impulsive,

cowardly – ways. So part of learning to be virtuous involves tolerating our own ignorance and being patient as we each discover the consequences of what we do.

Virtue becomes an even more pressing issue in a world in which too many people believe reality to be made up of discrete elements and separate things, which seems to give them license to act as if what is right is simply what they can get away with without being caught. This perverse, bad-boy ethics seems to assume that everyone else is acting the same way and that unless we act un-virtuously – imprudently, unjustly, uncharitably – someone else will and take advantage of us by acting so. This view of the world is right at one level, and deeply mistaken at another. While the material world, indeed, comprises separate elements – separate bodies, objects, buildings, spaces – there is also an underlying connection among all things and all people that we learn through experience. In that light, those who see the world in terms of competition and the survival of the fittest, are themselves weakened by too superficial a view of reality.

So how should we act in the face of un-virtuous acts against us or others? The idea of non-violent resistance comes into play here. We defuse lying, cheating, stealing, and the host of other actions that arise from a lack of virtue by resisting them, as Henry David Thoreau, Mahatma Gandhi, and Martin Luther King refused to respond to the cowardice, injustice, and prejudice of their day. Lying requires others to believe the lie; cheating, others to let the cheat get away with it; stealing, others to not report the loss. Likewise, cowardice requires that others compensate for the coward; injustice and prejudice, others to accept them as somehow normal. If a lack of virtue comes out of an ignorance of consequences, then awareness of consequences and refusal to go along with those who are ignorant of them, becomes our first responsibility.

This can be a challenge in a popular culture that sometimes seems obsessed by people who appear devoid of any sense of virtue, whatsoever: the movie stars who cheat on spouses and friends, the celebrities who lie and steal as if it is their right, or the conniving politicians, whose cowardice is matched only by their inept justifications when caught. While their follies can serve as useful lessons, the fascination with such sorry behaviour seems to satisfy a deeper culture urge. Nietzsche observed that Western culture has cycled back and forth between Apollonian and Dionysian sensibilities, between a love of balance and reason on one side and of over-indulgence and passion

on the other[1]. The Dionysian seems amply evident in the West right now, where excess and self-indulgence gets so much attention and restraint and self-effacement are sometimes mocked, although that may be changing, perhaps because of the mess we have made of the world by the excess and self-indulgence of the entire consumer culture. But a return to a valuing of the virtues – which have an Apollonian cast to them – will entail getting past the derision of our current Dionysian culture.

Of the four classical virtues, all have come to be associated with a lack of passion. Prudence, which originally meant practical wisdom or wise judgement, now refers mainly to someone who is a 'prude', someone who doesn't like sexual language or activity. Temperance, which originally meant self-control and an emphasis on the quality rather than the quantity of pleasure, has become associated with the 'temperance societies' who opposed alcohol. Courage, which referred to standing up for principle and not backing down to those who would have us do wrong, has taken on a much narrower meaning of courage in battle. And justice, which related to being just in our everyday dealings with people, now is something seen in strictly legal terms, decided in the courts.

The four theological virtues, in turn, have become related much more closely to religion. Faith, which used to infuse daily life and lead us to act in benevolent ways, has become what people display in church or temple, however faithless they might be in other parts of their lives. Hope, which was a part of lives that had little reason for it, has become a characteristic of incurable idealists blind to the self-interest and cut-throat competition that so-called realists espouse. Charity, which originally referred to actions of kindness to others one encounters in one's life, has become what charitable organizations do, relieving the rest of us of being so in our daily lives. And love, which once represented a way of viewing all of life, has now come to refer largely to romantic emotions and sexual relations.

Nor have the more modern virtues fared much better. Fidelity, which used to refer to one's loyalty to the good and to other people, has come to refer narrowly to one's loyalty to a spouse in marriage or to a lover in a relationship. Humility, which was held up as a goal of the wise person, has been mocked as a false front in modern cultures, with their focus on individual expression and outrageous acts. Simplicity, a corollary to humility, now refers to someone who is not very intelligent, who is 'simple', or who has not succeeded in life

and so must live in a forced simplicity. And compassion, which related to our acts of benevolence to those who have need or to those different from us, is now viewed as an emotional or irrational response to a situation.

Part of the mocking and dismissal of the virtues comes from the inconvenience they create for those who don't want to think about ethics as they pursue economic or legislative self-interest. Justice is inconvenient for the unjust; courage inconvenient for the coward. Behind the inconvenience of virtue lies the question of community. The marketplace works best in a 'community' of strangers, in which people make decisions based on price and personal need. A community in which people know and mutually support each other brings in other factors – benevolence, justice, temperance, and prudence – as a part of one's decisions. One might decide to pay more for something to support a local supplier or store owner, which runs against the economic assumption of people being rational consumers guided by lowest price.

Thus a virtuous society has to be one in which people are not strangers, one in which Adam Smith's 'moral sentiments' work to counter the 'amoral' marketplace. That, in turn, demands places in which people can have maximum face-to-face contact, projects of mutual interest, efforts that involve the participation of many, and a sense of collective accomplishment. Design is both part of the problem and part of the solution here. On one hand, design has played into the Dionysian euphoria that has gripped the West since World War II, almost as if we have not wanted to end the partying that came with the close of those hostilities nor end the extravagant use of resources and the extensive environmental damage that wars demand. When we clear a block of historic buildings as part of urban renewal, clear a site of its trees in order to build, fill up waste sites with useable materials for the sake of physical improvements, designers – often unintentionally and unknowingly – act in Dionysian ways and enact varying degrees of damage to communities and ecosystems.

But design does not have to be this way, nor has it been so in the past. By accomplishing the most with the least, revealing our connections to others and to the world, and respecting and building upon what has come before, design offers a way of re-establishing the original role of the virtues in our lives. Wise judgement, self-command, courage to do what is right, and just actions toward all; faith in a larger purpose, love of what we do, charity without expectation of a return, and hope in a more just future; humility and

simplicity as roads to happiness, and fidelity and compassion as ways of helping others achieve their own happiness – all of these characterize healthy communities that can sustain themselves regardless of the setbacks and hardships that happen to them. And all are qualities of what once was and, if Nietzsche is right, will once again come to characterize good design.

It is one thing for an individual to embrace such virtues, and another to act in settings that may not recognize or reward such personal qualities. Design professionals, for example, have multiple obligations – to their clients, to their colleagues, and to the larger community, as well as to themselves. And those obligations differ in terms of the professional's responsibility and the consequences of not acting to fulfill those duties. The architect who quit his commission had a contractual relationship with his clients and so his decision to no longer work for those owners brought with it legal obligations that he needed to address. Even if two parties agree to void a contract, they must agree on the terms of their parting as much as they did at the time of the contract's signing. The contract, while protecting both parties from unfair, improper, or illegal actions, also serves to temper intemperate actions.

The seventeenth-century philosopher, Thomas Hobbes, saw the dilemma that professionals face in meeting the duties of our field and the dictates of our conscience. He called professionals who carry out their duties despite what they believe, 'artificial persons', people who set aside their own values and beliefs in order to serve those who pay their fees[2]. This artificiality seems most prevalent among lawyers, who will defend the actions of clients, however possibly illegal or unethical those actions might ultimately be judged to be. Hobbes saw how this becoming an artificial person served to protect the real person behind the acquired professionalism, allowing individuals to retain a sense of themselves apart from their advocacy of others.

The notion of the artificial person holds other implications for design professionals. We do not encounter as many clients in trouble with the law as lawyers do, but we do face situations in which clients will push the boundaries of what the law allows to the point where it runs up against questions of what was once called 'natural law'. The couple who owned that wooded land had the legal right to rid their site of its trees; nothing in the zoning ordinances prevented them from doing so, and the history of property rights in the USA protected their freedom. But the now often-disputed idea of natural law – laws that transcend those of particular polities – suggests that

the clear-cutting of that woods by that couple violated laws of nature, such as the interconnectedness of all species in an ecology or the self-destructive behaviour of a predatory species like ourselves, annihilating the very ecosystems upon which we depend.

In an era prone to seeing everything as 'constructed' – as a cultural artifact – the idea of there being universally valid laws sounds repressive and even reprehensible to some. But the architect's exercise of consciousness in quitting his commission suggests another way of looking at natural law, not in political terms, as something imposed on people by repressors, but instead in ecological terms, as something inherent in our being one among many species on this earth. It isn't that certain human-written laws are 'natural' and thus above criticism or beyond change, but rather that certain evolutionarily derived and biologically driven relationships hold, regardless of what humans think. Many among us ignore or dismiss the latter, either from the political left, unwilling to give up on the idea of all reality being constructed, and from the political right, unwilling to give up on the idea that humans have a God-given right to use nature as we see fit. But we ignore the laws of nature at our own peril, however much our technology allows us to live in the illusion that we stand above or apart from them.

The laws of nature informed the virtue ethics of the ancients. Plato identified four virtues in the *Republic* that he associated with the four types of functions of people in a city: the temperance of working people, whose continued livelihood depends upon their self-control and measured activity; the fortitude of the police and military, who must bear up under aggression and danger; the prudence of leaders, whose guidance depends upon reason and sound judgement; and the justice of jurors, who ensure the fair and equal treatment of all[3]. Add to those the theological virtues of faith, hope, love and charity – the last of which we have already encountered in the religious ethics of the last chapter – and we have the basic tools to apply to the ethical dilemmas we may well encounter as more and more people on the planet struggle with more expensive oil, less readily available water, increasingly dramatic climate change, and the range of other challenges we already face.

Nietzsche observed that the virtues can conflict with each other, which is true if we apply them simultaneously and inappropriately, just as a hammer and a screwdriver can conflict if we use both at the same time to drive a screw. But knowing when to call upon which virtue is itself a virtue: that of prudence or

sound judgement. Seneca thought of prudence as the premier virtue, since without knowing what is the right thing to do when, all the other virtues may have little use[4]. And indeed, the virtues have seemed to be of little use in our own era, where popular culture encourages extreme behaviour, where many political leaders seem to make imprudent decisions almost as a habit, and where the terms such as virtue or prudence have acquired the connotation of moral or sexual inhibition. It is vice rather than virtue that seems to fascinate so many of us, and that may be partly why so many things – from our ecosystems to our political systems – have been damaged or become dysfunctional. And yet, one reason people turn to the 'artificial person', is because of a professional's knowledge and good judgement, which suggests that, however much the larger culture dismisses the virtues, they remain central to what we do.

Let's start with prudence or good judgement. At an annual convention of the American Institute of Architects, the ecologist William Rees gave a talk in which he mentioned a study of the Business Council of Sustainable Development, concluding that we need a 50 per cent reduction in our use of energy and material use worldwide and a 90 per cent reduction in the developed countries by the year 2040[5]. Rees pointed out that the ecological footprint per person around the globe in 1999 was 5.6 global acres, almost 20 per cent over the Earth's capacity of 4.7 global acres per person. And, with the world's population expected to increase by 50 per cent by 2050, the average ecological footprint of every person on the planet will need to drop to 2.8 global acres, or about 12 per cent of the 24.0 global acres per capita currently used by Americans. The thousand or more architects listening to his keynote address applauded warmly and then left the hall, and I sat there wondering how many had really heard the enormity of what he said. Reductions of that magnitude in a matter of a few decades will not come from slow, evolutionary adjustments, but will instead require a profound transformation in how we live.

This is where the virtues become most useful. They may seem easy to embrace when things are going well, but it becomes much harder to be virtuous when we confront situations in which the right thing to do goes against what we may want to have happen. We might hope that somehow technology will save us and allow us to continue with the levels of consumption to which we have become addicted, but prudence suggests that we will never achieve a 90 per cent reduction in energy and material use unless we dramatically reduce what we use and consume. Prudence also demands that we attend not just to our needs, but those of future generations,

since our increasingly unsustainable forms of living partly stem from a loss of belief in the future. If we don't believe in the future, we can treat it like the 'commons', something from which we can draw resources and into which we can dump the consequences of our current over-consumption. To live as if there isn't a future is not just irresponsible, but inconceivable, the most imprudent thing we can imagine.

The design of our cities, suburbs, vehicles, and buildings has a lot to do with the outsized ecological footprint of Americans in particular. Most of the release of greenhouse gases, the loss of habitat, and the use of materials and energy comes in the making and operation of the built environment. But design can also help us envision alternative futures, and give us hope for a future that too many of us act as if it will never come. Many older views of the future have tended to be high-tech, with a science-fiction character. What we need now, and what every architect who heard Rees's talk needs to do, is envision a truly prudent future, one that shows how we can all achieve a high quality of life with 90 per cent less of the energy and materials we use now. It is possible, but it will take real imagination and creativity.

It will also take other virtues as well, such as temperance. The virtue of restraint occupies the mean, as Aristotle noted, between being insensible at one extreme and self-indulgent on the other[6]. Just as prudence has become associated with prudes, temperance has been associated with tee-totalling, with an opposition to alcohol. But following Aristotle's ethics of moderation, in which the good usually lies in moderation, then temperance – the virtue of moderation – might be the most virtuous of all virtues. It may be the only way we will meet the ecological goals Rees outlined. Temperance might suggest that we should pursue a 90 per cent reduction with moderation, striving for a 45 per cent reduction instead, but that is not what Aristotle had in mind with his ethics of moderation. He did not counsel moderation in doing what is right, but instead pursuit with all of our energy the right thing, lying between extremes on both sides. The extremes we now occupy entail over-consumption of resources on one side and inaction on the other. The temperate response to such a situation would be to act to greatly curtail our consumption, returning to a life such as that lived by humans who, for thousands of years, lived within their ecological footprint.

As Rees observed, before they began to adopt the bad habits of the West, the ecological footprint of the average person in India and China was 1.7 global

acres, well within the carrying capacity of the Earth. The temperate solution to our future does not entail a radical, unprecedented life, but one that most humans have long found happiness and fulfillment within. Nor does it mean that the future will necessarily look like the past. While some in the design community argue that we need to return to historic styles, that return has no meaning if that doesn't involve a fundamental change in the lifestyles of people such that we greatly reduce our environmental impact. Unlike the pre-industrial forms that tend to appeal to traditionalists, the future may need to be a combination of pre- and post-industrial life, one in which we use mostly locally made or grown products and services and mostly virtual and digital connections to each other globally.

Focusing on the style and not the substance of this can marginalize the design community and prevent us from making the contributions only we can make in response to the changes ahead. It isn't the outward appearance of things that we need to start with, but with the design of the systems that now almost force us to live in unsustainable ways – the systems that lead us to ship food thousands of miles to reach our plates while local farmland disappears and that encourage us to make products half-way around the world while local unemployment remains high. Cheap oil and cheap labour in other parts of the globe have made it less costly to move materials around the planet than from neighbouring fields and factories, but the end of inexpensive fossil fuels, combined with the negative social and environmental impacts of such far-flung supply lines, have set the stage for a redesign of how we do almost everything. The critic Jane Jacobs wrote decades ago, in books such as *The Economy of Cities*, that economic health ultimately depends upon import replacement by local economies, and time and events have proven the value of her insights here, as well as in so many of the other things she had to say[7].

Jacobs had the courage of her convictions to say things contrary to the accepted wisdom, and that is where the virtue of fortitude becomes most useful. It is easy to seem courageous when saying what everyone already agrees with, but this virtue matters most when speaking out for what you think is right in the face of those with much at stake in the system as it exists. This is particularly a challenge for designers and other professionals, who seek commissions from those who have largely succeeded in the system as it currently operates, creating a tension between reinforcing the way things are right now and envisioning alternative ways of being in the future. The best design, like the best ethics, operates in that tension, helping people to take as

broad a view as possible of themselves and their activities while still working within what is possible in the world as it exists at this moment. Just as temperance helps in knowing when we have pushed too far, fortitude comes in having the courage to push at all. If some star designers tend to err too far on the side of rashness, of lacking enough of a sense of what is appropriate in a particular situation, far too many designers – and their clients – err on the side of timidity, on doing what others expect of them and nothing more. The most difficult and most courageous position exists between those two extremes, to push the boundaries in appropriate ways, with enough fortitude to take the barbs thrown from both directions.

Fortitude and courage assumes an opposition, and here too, we have to pick our opposition wisely. Adam Smith understood quite well the importance of competition to get us to excel, of having an opponent against which we can push to improve things. But the dilemma that lies at the core of capitalism is that we spend much too much time and effort on things that matter so little in the larger scheme of things. People turn to designers to give form to the latest fashion, the newest model, the hottest trend, and if it attracts customers, makes money, and pleases clients, we think that we have completed successfully against our opponents, even if the latter are doing essentially the same thing in their own way. Meanwhile, the real competition – the new inventions that can transform whole industries, the new ideas that can help us see existing knowledge in a completely different light, the new conditions that can change all the assumptions we thought were safe – tends to get ignored or wished away as not serious or not really a threat. And yet that is precisely where we need to look and what we need to take the most seriously.

One of the key issues in ethics, as in design, revolves around the question of sameness and difference. What seems different from, but is really the same as, something or someone else, or what seems the same, but is really different? At some level, of course, everything and everyone is both the same and different. We may all be the same as members of the human species, but some of us differ from each other as members of different cultures and communities, and all of us differ as individuals. But the relationships between sameness and difference are not symmetrical, at least psychologically.

If we believe that we are the same as someone else, that we are alike in almost every way and seem to know what others are thinking and feeling almost

all the time, then it comes a shock when we realize that the person is also profoundly different from ourselves, from a culture or belief system that we cannot access and only barely understand. In starting from the belief that one is the same with another, our whole conception of the person is shaken when the differences that have been there all along become visible.

The opposite, though, is not true. If we start by believing that people are fundamentally different and then work towards finding our commonalities, the parts that are the same, we are less likely to be disillusioned. Every time something we share emerges, it seems like a gift, a discovery, something to celebrate. So psychologically, moving from the sameness to difference has the potential for much more conflict or upset then moving from difference to sameness, which is generally uplifting and affirming, a cause for hope.

The disillusionment and subsequent rediscovery of modern design relates to this asymmetry. Modern designers generally believed in sameness, in the possibility of an 'international' style and in technology to minimize the differences among people globally, a vision very much behind global capitalism and global communications. But because of the asymmetry of sameness and difference, the assumption that all people and places were essentially the same (however true that might be as members of the same species or locations on the same planet) was bound to lead us to disillusionment, which in fact happened with modernism.

The revived interest in modern design has come from movement in the opposite direction, by seeking points of agreement among those who have very different views of modern life, and by looking at its meaning through the lens of particular places and times. In some ways, what designers have learned about asymmetry might serve as a useful lesson for all of those in the public and private sector still in search of the modern dream of global unity. Every business and every government that assumes that the world is just like them will eventually fail in their global efforts, and their only hope for success will come by assuming the opposite, respecting the differences of others, at which point they just might find how much we all have in common.

This, of course, demands a degree of faith, a virtue has taken quite a beating in the modern era, which arose out of the doubt of Rene Descartes. 'If you would be a real seeker after truth', wrote Descartes, 'it is necessary that at least once in your life you doubt, as far as possible, all things'.[8] But doubt

and faith are not opposed. As the Spanish writer Miguel de Unamuno wrote in *The Tragic Sense of Life*,'Life is doubt, and faith without doubt is nothing but death'.[9]The doubt at the core of modern thought, instead, highlights the difference between belief and faith, with belief as 'the truth whatever one wants (one "liefs") it to be', says Unamuno, and faith as 'an unreserved openness to whatever truth turns out to be'. A true believer will cling to a fixed notion of truth to the point of killing others who disagree – as we see in the religious wars underway around the world among believers who think that they hold the truth. Those who have faith, instead, will 'let go and pay attention' as the Buddha said, and indeed as Descartes did when he arrived at his doubt that anything else existed except his own thoughts.

Design, like all creative activity, demands faith, requires that we 'let go and pay attention', without knowing where our explorations into the possible solutions to a problem will take us. The problem arises when designers, or anyone for that matter, become true believers in one way of doing or seeing things, without any doubt as to the rightness of their position. This marks the death of design, as much as Unamuno says it does the death of faith. It has been a particular problem in all of the creative fields when a strong visionary develops acolytes who refuse to doubt the master, whose ideas almost certainly arose out of doubt about the way things were. The only way to renew our faith in a better future is through doubt.

The distinction between belief and faith applies to science and technology as much as the arts and humanities. Anthony O'Hear, in his book, *After Progress*, criticizes Western modernism with its unquestioned belief in science, its focus on individual happiness, its obsession with personal pleasure or pain, its cultural relativism, and its belief that we can understand everything through reason[10]. The irony here is that, while the modern era arose out of doubt, modern science and technology have created so many true believers in progress, that all doubters have been largely cast aside as Luddites. Modern design, at least in its early incarnation, embraced this technological evangelicalism, creating physical environments that promoted progress. Designers wiped away historical urban fabric, ignored traditional ways of building and making, maximized individual mobility and personal pleasures via technology, and reorganized the built environment into a set of rational systems. O'Hear reminds us what we have lost in this: cultures evolve slowly to address most human problems and that we are fools to think that we can instantly improve on this process. O'Hear ends by urging us to embrace some

old-fashioned virtues – humility, civility, morality, and beauty – that may be more useful in a future of limited resources than all the new technology we can imagine.

The unquestioned belief in progress stems, in part, from a very one-sided view of what it means to know something to be true. There is the path of reason, which says that truth lies only in what we can ascertain, in what we have tangible evidence for and proof through actual events in the world. What we can't measure or know for certain, we dismiss as unknowable and not worth thinking about – a path that Descartes very much set us on. This, of course, pushes us towards immediate gratification, towards physical satisfactions and material accumulation, while dismissing so much that cultures have accepted on faith. But faith is another way of knowing, accepting the idea that something can be true without our being able to ascertain it, now or perhaps ever. This form of knowing comes through our experiences or those of others who we trust.

While modern design may have too eagerly embraced progress, most designers employ this other way of knowing, having faith that certain things will work because of their experience in having done it or seen it before, or in listening to the advice of those who they trust. The value of this way of knowing may best be understood in William James's book *The Varieties of Religious Experience*, in which he argues that, contrary to those who see faith as oppressive, it is instead an act of freedom, an act of will in the face of other, often extreme constraints on our lives[11]. For designers, almost always working within constraints such as too little space, money, or time, their leaps of faith are acts of freedom, acts of will out of which the most creative – and often the truest – solutions arise.

These leaps of faith have no rational explanation and cannot be measured or predicted in any way, and they are like externalities in the lingo of economics, things of great value that lie outside what we put a value upon. As a result, one of the most important human activities – creativity – often ends up being the least compensated and the most taken for granted. As every designer knows who has entered a competition, the creative ideas gathered for free through this means, end up being a remarkable act of charity (often for individuals or organizations who could be rather more charitable themselves), a giving away of the most significant insights in order to get paid for doing production work that is more easily measured and quantified by

those cynics who know 'the price of everything, but the value of nothing', as Oscar Wilde said.

Charity has its virtues, however, if for no other reason than to remind us of how little we really need. At a homeless shelter in which I serve food monthly, a woman living in the shelter once said to me, laughing, that 'we don't have much, but we have all we need: soul!'. I have long wondered at the ability of the people in that shelter to remain so full of life and laughter when they have just spent their day on the streets and are about to spend their night on a mattress on the floor in the basement of a church. And I have come to realize that the real gift here isn't the food I and others make and serve, but the gift we receive every time in realizing that no hardship we have can compare to that of the homeless, and that if they can find purpose and pleasure in their lives, surely so can we.

As with creativity, in which the most important is often least valued, so too with charity do the most needy often have the most to give. This may be because we only see part of the wealth of the world. We all know about the visible wealth, that which money can buy and that results in tangible things or experiences, but what if that were only about a quarter of all the wealth in the world? What if in addition to the visible, material wealth (or lack of it) we see around us, there were equal amounts of social, intellectual, and spiritual wealth? And what if, even though we haven't figured out how to count or put a price upon it, these other riches create far more value than all the material wealth in the world? And what if this wealth were, in fact, evenly spread, so that those who have more material wealth, have less social, intellectual, and spiritual wealth? Where would we go to find the rest of it and how might we learn how to earn it?

Social wealth accrues where people are most dependent on each other for survival and safety. So, where people don't have to worry about whether or not they have the money to buy the goods and services they need to ensure their material well-being, social wealth tends to decline. We think of the people who live in gated communities or behind high walls as wealthy, but were they ever to not have such material well-being, they would be among the most vulnerable and least protected of people. The designers who create environments for such people face a particular dilemma, able to expend their design talent on projects with ample budgets, while often having to create simulations of social wealth that seems so lacking in such places. The media

centres and exercise rooms and wine cellars seem almost like substitutions of the public life the rich seem to shun. The very lavishness of the places almost seems like a compensation for the impoverishment of their owners.

Intellectual wealth can accumulate in places like schools, colleges, and universities, and museums, theatres, and libraries, although not only there. The openness and accommodation of such institutional settings to those who want to learn is admirable, although knowledge-driven organizations have a sometimes-awkward relationship with material wealth. Arts and educational institutions, particularly in North America, have come to depend upon the charity of donors, so much so that their names, attached to everything from buildings to bricks, can begin to seem like a kind of graffiti. Designers may cringe at such monikers all over their work, although they know that the gifts of such donors often make the difference between a barebones project and one that has some added features. But beyond a certain point of providing the basic facilities people need to function, buildings that seem to be more monuments to donors' egos have little to do with the intellectual wealth of such places. The first schools started with a few people sitting under a tree, and it may be, with the advent of online learning and alternative schools, public art and fringe theatre, digital books and wireless networks, that we someday find ourselves, again, discovering that real intellectual wealth can be earned almost anywhere, wirelessly under a tree as much as quietly in a classroom.

The hardest form of wealth to quantify or even talk about is spiritual wealth, but it is found among those who have absolutely the least of any of the other forms of capital. That is what that homeless women meant about having all she needed with soul. Homeless people, of course, also need the basics of food, clothing, and shelter in order to live, and that has to be considered, as the United Nations has argued, a basic right of all people and a basic responsibility of all governments. That the USA, the richest country, has a higher rate of homelessness than any other similarly developed nation is absurd and simply shows how little we understand the true nature of our impoverishment. But beyond basic needs, anyone who works with homeless people knows of their spiritual wealth, the inner strength they have acquired, however much some of them have suffered from mental illness, addiction, or physical abuse. This is not to glamourize or romanticize their condition. Everyone deserves a home, and the basic goods and services they need in order to live. But even those who have no money, no community, and often

little schooling have a kind of spiritual wealth that others seek in vain at weekends in churches and temples.

In the future, when many of us may indeed find ourselves with much less material wealth than we now have, as a result of events over which we will have no control, we may come to realize how to cultivate and value these other forms of wealth, which will be much more useful to us in any event. Small children understand this all too well. In the world of the playground, before they get socialized into the skewed values of the adult culture, what matters are their relationships with other kids, with learning a new game, and with engaging in the spirit of play. Money and the possessions that money can buy either seem meaningless, if not an outright distraction to the other forms of wealth there. Children have a kind of unspoken social contract on the playground that we adults would do well to learn from, for that contract might be one that we, too, will need in years to come.

PLACES

Hospital

Diseases of the soul are more dangerous and more numerous than those of the body.

— Cicero

My ophthalmologist uncle once tried to interest me in medicine by taking me on his rounds when I was eight years old, giving me enough exposure to bloody eyeballs to convince me that I never wanted to be a doctor. I remember noticing, though, the harsh and inhumane setting in which he worked, with bright lights, hard floors, metallic equipment, and loud beeping sounds making the interior of the hospital a completely inhospitable place. How could anyone work in such an environment or hope to get well in one?

In the years since that first traumatic visit, hospitals have improved. During my father's recent illness with cancer, I saw how patient rooms have become more welcoming, with softer lighting, quieter acoustics, and warmer materials. But hospitals remain large and often labyrinthine, with confusing collections of corridors and confounding assortments of signs. Many hospitals also still have an institutional feel, like some giant machine from which we would be lucky to come out alive. The sense of soullessness, of mechanistic medicine, might be the last thing a hospital administrator wants to convey, but that is precisely what most hospital buildings connote. Healing occurs in a kind of virtuous hell.

It is not a coincidence that these buildings send that message. The architecture aptly reflects what happens inside, providing a mirror to the mechanistic model of the human body that has reigned in medicine for so long. Despite recent efforts to engage the whole person, medicine – as I hear it described by my physician family members – still seems wedded to the metaphor of the body as a kind of machine, composed of a set of interrelated, but also independent and highly complex systems of soft and hard tissue, of blood vessels, body organs, and bones. Given that, why would we expect hospital buildings to be any different? Their myriad mechanical, electrical, and structural systems, and their complex circulatory, communication, and conveyance systems, all serve to create, in concrete and steel, the architectural equivalent of medicine's dominant metaphor.

No wonder so many people try to avoid hospitals. Who wants to be treated like a machine, in a machine-like building full of machines? The modern hospital may do well in curing the ills of the body in this way, but as Cicero would say, it does little for diseases of the soul. Indeed, hospitals may make the latter worse through the sensually harsh and psychologically unhealthy environment they provide for people. And if Cicero is right, that diseases of the soul are more dangerous and more numerous than those of the body, then shouldn't we find better ways of curing both types? What might such a building – a hospitable hospital – be like?

We might start with a different metaphor, one that views the body and the building not as machines, but gardens. Healing gardens have begun to spring up next to hospitals as places in which patients and their families can connect to nature and revive their spirits, and perhaps that same sensibility needs to infiltrate the entire experience, where growth and change,

restoration and renewal, mind and body all get addressed in more holistic ways. A greater connection to the natural world – access to daylight and fresh air, views out to the landscape and sky – from inside the hospital would benefit not only the healing of patients but also the productivity of physicians and staff.

This is not some nicety to attend to once the real work of medicine gets done. Diseases of the soul – be they anger or anxiety, depression or self-destruction – often lead to diseases of the body, and so the more we create places that help us cure the former, the fewer places we may need to cure the latter. It's as if we extended the Hippocratic oath to the entire healing environment: doing no harm not only to patients, but also to everyone connected to and caring for the patient and to the world around us all.

Healing garden

> *To forget how to dig the earth and to tend the soil is to forget ourselves.*
>
> — Gandhi

The healing garden in the hospital near me has a labyrinth comprised of paving stones in the grass, surrounded by curving clusters of low trees and bushes. While I have rarely seen people in that place, I find it to be a wonderful condensation, in a very small space, of two seemingly different views of nature. The labyrinth appeals our rational side and the desire to control and order nature in ways that mimic the human-made world; we walk the trail of the labyrinth as we walk the halls of buildings and, more symbolically, the paths of life. At the same time, the clusters of foliage in that garden express the romantic impulse to conserve and care for nature as it is and as we think it wants to be. Just as nature takes its course in the surrounding hospital rooms, so too does it do so in that garden, beyond our control and there for us to learn to accept.

We tend to see those two types of gardens – the formal and informal – as somehow opposed, with the one appearing more 'artificial' and the other more 'natural'. But both are really just a mirror of ourselves. Everything we do as humans is at once natural – a reflection of human nature in all of its paradoxical complexity – and artificial – a product of our reason and imagination applied to transforming the world. Both the natural and artificial, then, are part of a larger whole that encompasses both and that we might think of as 'natural artifice', the transformation of things in alignment with the natural world.

That sense of wholeness and oneness with nature lies at the heart of what heals us. Indeed, as Gandhi observed, when we forget how to dig the earth and to tend the soil, we forget ourselves, suggesting that illness arises from the forgetting of nature and thus of who we really are. Some illnesses, of course, are simply a natural part of growing old and as such, remind us of our connection to all living beings through our mutual mortality. But so many illnesses arise from our disconnection from nature, from eating high-fat food, smoking highly carcinogenic tobacco, drinking cirrhosis-inducing alcohol, and generally engaging in high-risk behaviour. When we dig in the earth and tend the soil, or simply stand and enjoy a garden, we remember that we are really more like the trees and plants we cultivate there: fallible, finite, and fragile. Perhaps alone among the animals, we humans can fool ourselves into thinking we are apart from nature. It is a part of our nature to do so, and a part of why we need gardens to remind us that we are not.

Where does our paradoxical nature arise? Nietzsche described it as our love of considered reason and personal control on the one hand and sublime emotion and self-expression on the other. True health lies instead in finding the proper balance between the two, being reasonable in how we live and self-controlled in what we do, while being open to our emotions and unafraid to express the truth. In that sense, gardens serve as a model of balance. Whether we lay out gardens in regular geometries or irregular ones, in labyrinths or lazy curves, what matters is less the forms we give nature than the lessons we learn from it. The resiliency and resolve, the sense of acceptance and accommodation in both the flora and fauna of gardens, represent values that can heal us. In watching a garden grow, we grow as well.

Golf course

> *The human race's prospects of survival were considerably better when we were defenseless against tigers than they are today when we have become defenseless against ourselves.*
>
> — Arnold Toynbee

An acquaintance of mine writes plays about golf, seeing in the game metaphors for the trials we go through in life, with the sport's mix of collegiality and competition, expansiveness and control, the natural and the designed. Part of the pleasure of playing golf involves the physical environment in which we play it, whose broad lawns, wall of trees, and long vistas remind us of the forest edge and open savannahs in which we evolved as a species. In walking across the fairways in search of our golf balls, we recapitulate the hunts we used to conduct across the African plains, looking for the scarce items we needed to survive. The satisfaction we derive from the game goes deep, evoking a past we barely remember in the most instinctual part of our brains.

We have grown accustomed to the idea that humans have an inherent hunting instinct, given our proclivity to kill not just other animals, but ourselves, in substantial numbers – an intentional self-destructiveness that few other animals share. The forest edge along a savannah provided the cover we needed to surprise animals, most of whom are faster or stronger than humans, which might explain the joy we feel when hitting our golf balls out of the rough or traps along the fairway and back into the clear, returning once again to the hunt and catching up with our competitors. But is there something other than the hunt at work here as well? How else to explain the cooperation and collegiality that occurs on the golf course, the 'good sportsmanship', as Mark Twain put it, 'to not pick up lost golf balls while they are still rolling'?

The anthropologists Robert Sussman and Donna Hart have argued that early humans needed to focus more on survival than on killing, that our ancestors faced the constant threat of predators and had to be especially careful along the forest edge, from which other animals could spring[12]. This idea can come as a surprise, since so many of us have come to think of ourselves as all-powerful, able to kill anything that might prey upon us, even though some of the smallest things – bacteria, viruses, and genetic defects – continue to kill us in great numbers. Fossil records, say Sussman and Hart, showing human bones near those of larger predatory animals provide ample evidence of our long history as prey. The wariness golfers have of the woods along the fairways echoes the deep-seated wariness of our ancestors to such locations, and the desire to stay out in the safety of the savannah, in the middle of the fairway.

Sussman and Hart also observe that survival amidst predators led humans to develop social bonds and cooperative communities in order to watch for danger and come to each other's defence when attacked. Like golfers, who group around the tee, spread out across the fairway, and come together again at the green, human communities did the same, coming together, scattering, and reconvening to make sure everyone in the group has moved along together in a repeated ritual that ends where it began, at the clubhouse, where celebration of having successfully survived the course occurs.

The game of golf also disguises a paradox in our survival as a species: that we humans remain, as Toynbee observed, our own worst enemy, our greatest threat. The golf course reflects this as well, although in less obvious ways than the other rituals of survival enacted along it. The clearing of native vegetation

to reconstruct the savannah, the controlling of the perimeter in order to keep out those who haven't paid, the applying of pesticides to help create a perfect turf surface – such actions speak to the way in which we humans prey upon ourselves indirectly through our treatment of other species, other people, and the land itself. We may have overcome the threat of most predators, but we have yet to overcome ourselves, and reminding ourselves of that may be among the greatest gifts golf can give us.

Playground

Play is the exultation of the possible.

— Martin Buber

As a dean of a design college, I find that students and their parents sometimes seem surprised when, in talking about what designers do, I liken it to a form of play. That surprise might stem from the fact that we often dichotomize work and play, just as we do the lives of adults and children, and so the notion of work as a form of play and play as a way to work runs counter to the neat categories in which we have partitioned the world. But all creation, every new invention or insight, comes from a playful toying with reality, an exploration of unseen connections, and, as Martin Buber put it, an exultation of the possible.

This has become particularly relevant today as we look across the globe at the serious problems we face, be they social, environmental, economic, or political. Their sheer size and potential impact are sobering, and we need to take them very seriously, but their real solution will come mainly from play, from thinking outside the boundaries of the problems themselves. Einstein recognized this: the profoundly creative ideas he came up with resulted from

his playfulness as a thinker, his willingness to do thought experiments about the world and his openness to new realities that seemed to defy logic[13].

While Einstein was a genius, we all have his ability to play, which many of us seem to lose as we grow older, whether out of insecurity or insufficient incentive or simply fear. When we look at children on a playground, we see many of the traits that made Einstein so great: the willingness of boys and girls to imagine realities that don't exist, to repurpose objects for different functions, to invent new rules for the games they play, to suspend judgement about things as they evolve, and to enjoy the moment and see in it possibilities that often escape adults. Like many parents, I have sat next to playgrounds waiting for one or both of my daughters to finish their games or their exertions so that we could go home and get on with things, but now that my children have grown and I no longer loiter so, I wonder at how much I missed in what my daughters were doing.

Their play had in it the seeds of what the world desperately needs, even as so much of our schooling creates an impression of play as extraneous and dispensable, evident in how many schools have reduced or eliminated 'recess' from the students' day. The location of playgrounds, usually off in a park or by a field, reflects this, based on the good intention of protecting children from cars, while also conveying a sense of play as something disconnected from and irrelevant to the world. 'Go off and play', I remember my mother saying to me when she wanted to get her work done.

The time has come for us all to go off and play, to rewrite the rules of games that no longer serve our needs or that of others. Those include economic games such as 'winners-take-all', in which a few on the playground get all the toys and most get almost nothing; political games such as 'tag-you're-it', in which anyone at all different gets tagged for purposes of discrimination or deportation; or environmental games such as 'dig-a-hole-to-China', in which the person able to extract the greatest number of resources gets to keep them while future generations get to clean up the mess and pick through what is left. These are all the games of bullies. Instead, we need more games in which all can play, all have a chance of winning, and all have an equal responsibility to care for the playground so that others can use it. We all once knew how to play these latter games. We simply need to remember our childhood, watch our children, and then begin, once again, to play responsibly.

PRINCIPLES

Instead of expensiveness, focus on affordability

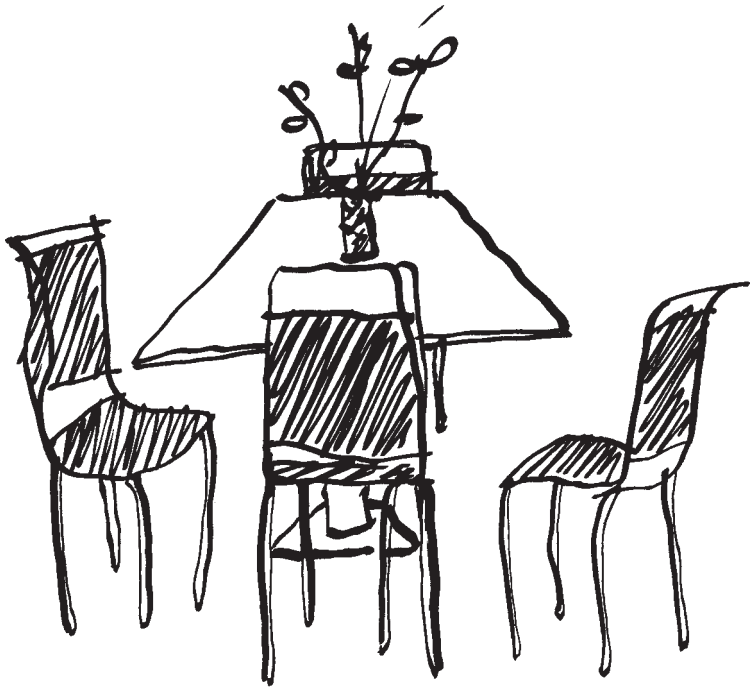
Affordability is a relative word – what one person may be able to afford might be completely impossible for another – but it is also a paradoxical word, in that it offers, within its own meaning, a critique of itself. While we often think of the word 'afford' in terms of its most common definition, our ability to pay for or meet the costs of something, 'afford' also means the ability to provide or spare something without unacceptable consequences. On one hand, the two definitions align. Those who can afford to buy the most, in theory at least, can afford to spare the most as well. But on the other hand, the values implicit in the two definitions seem diametrically opposed. What if, instead of thinking about what we can get or 'afford' to buy, we focused on what we can give or 'afford' to provide? What would such a world be like?

It would certainly be one in which we thought of expense differently. Instead of referring mainly to the cost of something, expense in a world that measures wealth based on who can spare the most would become more a matter of the value created by what we give rather than the price that must be met in order to get. A little given to someone in need has a far greater impact than the same spent getting more for a person who already has more than enough, and so the greatest expenditure would be to those who have the least to spare.

And what do we receive for such an expense? Probably nothing we can buy in a store, because such things cost more than any amount of money can buy: the affection, respect, and love of someone else.

Such an idea might drive accountants crazy. We can't run an economy this way, they might say. But we can no longer afford not to, for continuing to allow so few people have so much and so many people have so little is how we will bankrupt ourselves morally as well as economically. There is so much that so many of us can afford to give and so little return by not giving. Can you spare a dime?

Instead of excluding others, provide everyone a place



A great aunt of mine used to yell at me a lot when I was a kid, after which she would say that children should know their place. I guess I never knew mine, and yet as I aspired to create a sense of place in my years as a designer, I wondered at the two very different connotations of the word 'place'. To know our place suggests that some sort of fixed hierarchy prevails, with some in a more privileged position than another. While I might have been tempted to tell that childless aunt of mine that she didn't know her place, I didn't because I didn't think I had the right to question her yelling at me. To have a place implies something else: that we belong to a group or a setting in which a web of relationships exist that transcend formal titles or fixed positions. Other than with my great aunt, my family was a warm and nurturing place in which to grow up, the kind of family every child deserves to have.

One of the curious things about my great aunt is that she seemed to like animals and plants as much as she disliked children; she had birdfeeders and flowerboxes, indoor plants and food that she would leave out for the deer in

winter. They must have known their place, for she had no problem creating a place for them. What if the rest of us did the same, creating a place not just for those who are like us, but also for those who are not, the non-human species we share this planet with? I know the challenge of this, having tried to shoo birds and squirrels out of the house when they managed to get in. But what if, in addition to the household pets and houseplants we might have inside our homes, we provided habitat for as many others outside as possible? Give away the lawnmower and let the grass grow! Get down off the ladder and let the trees and shrubs go! They and all they accommodate deserve a place, and what place do we have to deny them of it?

Chapter 5

Drafting a new social contract

At the recommendation of well-meaning friends, I went to a place called Wrentham Village outside of Boston, a development that had a particularly architectural appeal, recalling the name of the eighteenth-century architect, Sir Christopher Wren. But Wrentham Village would have baffled Wren. The village had some features that he would have understood well: nicely scaled pedestrian streets, Tuscan-columned colonnades, publicly accessible squares, and the occasional signpost to help people get their bearings. But those traditional forms had a peculiar function. Instead of the mix of uses we might expect in a village, there stood row after row of outlet stores for national

franchises, most of them offering clothing and accessories or domestic goods. Although many people walking around that hot summer day had rather less covering than Wren would have been used to, the skimpiness of their clothing stood in sharp contrast to the sheer quantity of apparel in those stores, whose windows had large signs touting their deeply discounted prices. Indeed, with everything on sale, it wasn't price that set one store off from another, so much as design – from the design of the clothing in the windows to the design of the store interior to the design of the logo and 'look' of each brand.

Despite the old-English quality of its name and public spaces, Wrentham Village seemed classically American: a fake community, built in an open field at the far edge of a city, offering people seemingly unlimited choice at low prices. Companies clearly liked the format, since almost every storefront had a tenant, although it must not be an easy place in which to do business with so many competitors all around, each trying to outdo the other's already low prices while also trying to reinforce loyalty to and the exclusiveness of their identity. The slightly desperate feel of the place was reinforced by the many double-glass doors propped open to the pedestrian walk, as store owners tried to entice passers-by inside by cooling the sweltering outdoor air. While that tactic must have worked, given the number of stores doing it, it also seemed like just another way for these chains, with their already discounted merchandise, to bleed more dollars; what they didn't lose in clearance sales, they might lose in air-conditioning a summer day. It didn't seem economically sustainable any more than it was environmentally sustainable.

Wrentham Village prompts the question of how long commercial America can keep going like this, with plentiful goods and low prices based on the assumption of inexpensive and plentiful fossil fuels. James Howard Kunstler, in *The Long Emergency*, calls this 'sleepwalking into the future', in which we seem oblivious to the probability that we have already passed or will soon pass the peak in the planet's oil reserves, at which time cost of fossil fuels will start to soar. When that happens 'all of our accustomed modes of activity', observes Kunstler, will 'change in the direction of smaller, fewer, and better'[1]. Behind Kunstler's critique of our 'drive-in utopia' of suburban sprawl and lifestyle centres like Wrentham Village lies the question of what can give meaning and direction to our lives once some of the essential ingredients of our old social contract, with its encouragement of conspicuous consumption, have disappeared? What might a new, more sustainable social contract entail, a new 'religion of hope' as Kunstler puts it? If virtue ethics gives us the tools to

develop a good character, contract ethics can help us develop a good society, one in which people, as a group, agree upon certain rules of mutual benefit in order to achieve a good life. In times of stability, a community or culture might not dwell much on its social contract, on the agreements that enable a society to function, but in times of great change or impending threats, such as we now face at a global scale, the re-evaluation of such contracts can become critical if we are to thrive under the new conditions. To consider what a new social contract for us might be, it can help to look at previous efforts, all of which respond to the pressures of the times in which these ideas were developed.

The social contract theory of seventeenth-century philosopher, Thomas Hobbes, reflects the frequent warfare and political turmoil he experienced during his life. He envisioned a state of nature in which he famously described human life as 'solitary, poor, nasty, brutish, and short', and human groups engaged in constant warfare 'of every man, against every man'[2]. That led, said Hobbes, to our agreeing to a social contract in which we would gain security and prosperity in exchange for living under and by the laws and dictates of a government, the Leviathan. Whatever else we might think of Hobbes's social contract, it reflects a hostility to living in a state of nature, and, like the materialist philosophy Hobbes espoused, it embodies a view of society as a human construct whose success is measured in material terms, quite apart from the natural world.

For the eighteenth-century philosopher, Jean Jacques Rousseau, living in a time of relative harmony in Europe, people were happy and at peace in the state of nature[3]. Inequalities formed, thought Rousseau, when people began to see nature in terms of their property and possession, and when they agreed to enter into a social contract in which government would ensure the least amount of authority necessary to enable people to live as close to the original state of nature as possible, protecting people's rights, while maximizing their personal freedom. Here, we see the romanticizing of nature, to which we yearn to return, even as we resign to live in societies that Rousseau saw as always having the potential to corrupt.

A third social contract theorist, the twentieth-century philosopher John Rawls, wrote in an era defined by racial segregation, ethnic prejudice, and economic disparity, and so his theory of justice engages in a thought experiment in which we make decisions about the fair distribution of resources and services under a 'veil of ignorance' about any knowledge of our

previous existence or personal situation[4]. From this 'original position', people would always want to ensure that any social contract would benefit the least advantaged person, since we might be that person. Rawls dispenses with the idea of a 'state of nature', and he tends to view the natural world as a set of resources that we distribute or not, depending upon what seems most just.

Indeed, all three see the natural world in a similar way, differing mainly in how they would parcel it out. Hobbes would entrust that distribution to a powerful central authority, Rousseau to autonomous individuals living close to nature, and Rawls to a group of people delegated to make that decision based on a consensus process. All three, though, rest their social contracts on the idea that humans have the right to use the natural world – other species and the planet itself – for their benefit, and to redistribute it as they see fit. Which is why we have come to a point where we need a new social contract, one that takes into account, as the philosopher Peter Singer argues, the joy and suffering of all sentient beings, not just humans but all non-human animals as well, in our ethical decisions.

What might such a social contract be like, one that sees us as inseparable from and stewards of nature? Singer, in his essay 'Environmental Ethics', argues that 'the arguments grounded on the interest of present and future human beings, and on the interests of the sentient nonhumans who inhabit the wilderness, are quite sufficient to show that, at least in a society where no one needs to destroy wilderness in order to survive, the value of preserving the remaining significant areas of wilderness greatly exceeds the values gained by their destruction'[5]. A new social contract might turn Hobbes on his ear and see how we humans have created a condition in which life for most other species is now 'solitary, poor, nasty, brutish, and short', and that the Leviathan government we now need is one that sees how human well-being is intimately tied to the well-being of all the others species on the planet on which we depend for everything from the medicines we need to the oxygen we breathe.

At the same time, such a society would recognize, as Rousseau and Rawls did, that human inequities are equally devastating to everyone, the wealthy as much as the poor. Singer, in his essay 'The Good Life', writes:

> In a society in which the narrow pursuit of material self-interest is the norm, the shift to an ethical stance is more radical than

> many people realize. In comparison with the needs of people starving in Somalia, the desire to sample the wines of the leading French vineyards pales into insignificance…The preservation of old-growth forest should override our desire to use disposable paper towels. An ethical approach to life does not forbid having fun or enjoying food and wine, but it changes our sense of priorities… there is a desperate need to do something now about the conditions in which people live and die, and to avoid both social and ecological disaster. There is not time to focus our thoughts on the possibility of a distant utopian future… We must reinstate the idea of living an ethical life as a realistic and viable alternative to the present dominance of materialist self-interest.

That most contract ethics view nature as a resource there for us to distribute reflects a deep-seated insecurity about our place in the natural world, evident in virtue and religious ethics as well. Aristotle, for example, saw human reason placing us in a superior position to all other animals, who 'live by appearances and memories, and have but little of connected experience'[6]. His emphasis on moderation would have us be judicial in our treatment of non-humans, and would not support the excessive use of natural resources, but Aristotle's ethics does little to counter the fundamental difference he sees between humans and all other nature, an inequality that finds its echo in our current environmental dilemma, where moderation in our use of fossil fuels means little when even our judicious use of them will eventually prevent future generations from having access to them at all or where moderation in our killing of animals means little when enough humans do enough killing to lead to the species' extinction. Moderation in the exercise of an evil is still evil.

Likewise, the Judeo-Christian tradition sees a fundamental separation between humans from the rest of nature, not based on reason, but on revelation. The book of Genesis recounts how 'God created man in his own image… and… said to them, "Be fruitful and multiply, and fill the earth and subdue it; and have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth" '[7]. Such dominance over nature has given us license to exploit and manipulate the environment, and paradoxically, to end up creating conditions that threaten our own existence as a species, countering the command to be fruitful and multiply.

A new social contract would recognize and reward people according to how well they would husband finite resources, improve the natural environment, serve those most in need, and give as much as possible to others. Equity would no longer be, as it was for Hobbes and Rousseau, primarily a matter of keeping greed in check, since that assumes that the primary motive of human action is to acquire as much property or power as possible. In the new social contract, freedom would be a matter of how much we can live without, as Thoreau said, and equity a matter of how simply we can live, so that others can simply live, as Gandhi put it. In a future in which many of us may be on the move or left without much, a social contract that encourages us to live lightly has a real advantage.

This all sounds quite utopian, but we need to make a distinction between different types of utopias, some of which do as much damage as that which they seek to redress and others which can put in place processes that enable us to improve our situation. Mark Lilla, in *The Reckless Mind*, covers some of the negative aspects of utopia we need to take care to avoid, showing how intellectuals – who he calls 'philo-tyrants' – can wreak havoc when they attempt to impose an idea on the world[8]. One of the characteristic interests of such philo-tyrants is 'the right ordering of cities and household', something that designers, especially in the last two centuries, have sometimes fallen prey to, designing rightly ordered cities, often for political tyrants, whether democratically elected or not, that have created much misery in their wake. Lilla reminds us that no single idea or singular image of a good life can fit all. Instead, it has to be a view of life – one of inquiry, contemplation, understanding, modesty, and responsibility – that can take many forms depending on the people and the place.

Lilla also suggests a distinction we need to keep in mind between the thinker and the tyrant. 'Philosophy', he writes, 'is a kind of controlled erotic life that hopes to attain what love unconsciously seeks: eternal truth, justice, beauty, wisdom. Few are capable of such a life, and most of those who aren't will gratify their yearnings in predictable ways and lead middling lives. Others, though, become utter slaves to their drives, and nothing will control them'. Lilla notes that:

> Socrates describes the tyrannical soul as one in which the madness of love... drives all moderation out and sets itself up as ruler, turning the soul itself into "a tyranny established by love".

> The philosopher also knows the madness of love, the love of wisdom, but he does not relinquish his soul to it; he remains in control, governing himself. The tyrannical man is the mirror image of the philosopher: he is not the ruler of his aspirations and desires, he is a man possessed by love madness, the slave of its aspirations and desires, rather their ruler[9].

For the designer, like the philosopher, the challenge becomes one of controlling and governing the ideals we can so easily fall in love with, lest we become tyrants to ourselves as well as to others.

It also helps to see utopian ideas, like that of contract ethics, in their context. Thomas More wrote the first modern book on the subject, *Utopia*, in part as a protest to the 'enclosure laws' of England, when the once open commons had become fenced and off limits to those who used to wander across it[10]. How much does a desire to envision a new social contract with nature arise from a similar sense that we are running out of what we once saw as common, such as fresh water or fossil fuels? We have had our own 'enclosure' of such things, with corporations increasingly controlling access to seed stocks, spring water, and fuel sources. But, unlike More's island of Utopia, our returning such things to a commons would entail a global effort, turning the planet into a kind of Utopia in space. Garret Hardin has argued that the 'tragedy of the commons' arises from his belief that people will exploit anything that is common for their own personal benefit, but only if we retain the old ethics of our separation from and superiority over nature, which creates a sense of scarce resources over which we have to fight to control[11].

But what if we envisioned a social contract based on the opposite idea, that the natural world involves not scarcity, but overwhelming abundance? There is almost 250 times more solar energy striking the earth's surface than the amount of energy humans now consume in a year, over four times the amount of fresh water than even Americans, the most water-wasteful population on earth, use in a year[12]. A utopia of natural abundance would not give license to individuals or groups to waste or damage the natural environment. Indeed, it would seem that the reason people do so is because of a perception of its scarcity. Rousseau's lament of humans putting the first stake in the ground to say that they owned a piece of the land, comes from the knowledge that there was a finite amount of it. But that has extended to things for which there are ample supplies – food, water, and energy. When

people perceive a material or energy source to be scarce, its value goes up, as does the desire to hoard or use it while supplies remain, thus accelerating its depletion.

A new social contract would make a distinction between the finite aspects of nature – land, minerals, fossil fuels – that we need to control so that future generations can also benefit from them, the renewable aspects of nature – life forms, fresh water, solar and wind energy – that we need to steward so that we don't use more than the supply can renew itself, and the infinite aspects of nature – human knowledge, understanding, kindness, love – which we should use and grow as rapidly as possible. This would, in some sense, turn our existing contract on its head, for we sometimes seem to have a dearth of human compassion and understanding, as almost every social indicator shows; an impoverished effort to harness the wind and sun for energy; and a system that encourages the exploitation of finite resources – land, minerals, fuels, water, and other life forms – to the point of extinction or depletion. It's enough to make us wonder if the most endangered thing of all is human intelligence.

One of the common features of almost all of the utopian literature is the recognition that humans need to control their desire for things in order to have more time and energy for social, intellectual and spiritual pursuits. Some critics have seen this aspect of utopias as too controlling, although that criticism assumes that not having possessions is a constraint. For most utopian writers, as well as for most ethicists, this can also constitute a kind of liberation from the demands placed upon us to make more, buy more, and have more. The real question here is: who does the controlling and what is controlled? As the Stoic philosophers liked to remind us, we can only really control ourselves: our own actions, emotions, and interpretations of things. Everything else is not ours. A social contract with this in mind would accept our collective control of all that is finite and our stewardship of what is renewable, in order to give us the freedom to develop what is really ours: our mind, body, and soul. That we all have in abundance, and it is perhaps through the lack of its development that we have created the dystopian reality in which so much of the world now lives.

Design has played an important role in utopian thought, evident in the often-careful descriptions of the buildings, cities, and landscapes in most utopian novels. This is partly due, no doubt, to a need to show, in very concrete terms,

something that doesn't yet exist, a need that every designer faces when trying to convey to others what they envision their design to be. But there is a particularly paradoxical aspect of utopian descriptions that designers might learn from, which is how to make a more materially frugal, and socially, intellectually and spiritually rich future seem appealing through material means, through drawing and models, in bricks and mortar. This runs counter to what designers have traditionally done to sell their visions, by showing them in isolation, sometimes devoid of context and seemingly larger than life. That is understandable, since how we depict things often reflects the importance and value we place on them. But that has an unintended consequence of reinforcing the association between material things and personal happiness that we all have been encouraged to make.

In a new social contract, in which intellectual, social, and spiritual abundance begins to compensate for the material scarcities we will all increasingly encounter, the challenge will be to translate the non-physical into physical terms. The answer to that dilemma may lie, partly, in the issue of quantity versus quality. In our current dystopian world, mass production and consumption have led to a vast increase in the amount of stuff people have, and the rapidity with which we throw it away. Where once people handed down heirlooms, they now buy disposables. A more materially frugal existence, such as the one most humans have lived for thousands of years, might have a more satisfying character because of our owning fewer things, that would be much better made, valued more, and handed down as long as possible. In a less possession-driven world, we might come, ironically, to have a greater sense of love of, attachment to, and caring for possessions, just as in our own highly materialistic times, we have come to take care of material things less and less.

This applies to the designers of things as well as the consumers or inhabitants of them. As designers we like to see ourselves as 'problem solvers', rarely questioning whether the problem presented to us by the client is in fact the right problem to solve. The ancients in both Eastern and Western culture realized that existence is tragic, that most of the dilemmas we face are full of paradox and that an effort to try to solve them will end up having negative as well as positive effects. Instead of seeing design as solving problems, we might instead see it as a way of understanding them. Our focus would not be on eliminating problems, but on living the contradictions and ironies embedded within them, with designed objects and environments

provoking our contemplation of the material world and the paradox of our being finite, physical creatures with an infinite capacity to transcend and transform ourselves. Revealing our condition rather than 'solving problems' may end up being the real purpose of much of what we design.

It does, admittedly, seem odd to talk about design in this way. Designers might wonder if we would ever get a commission were such a social contract in place; every designer seeks to improve things, and how can anyone be against improvement? But it isn't the case that people would no longer need design; humans will always have to make the things we need in order to live regardless of the perspective we have towards life. Rather, it is a question of how we do this, and how much of it we do. Design has been fed the fantasy, particularly strong over the last few decades, that humans can have unlimited freedom, unending consumption, unbounded power. Fossil-fuelled technology, of course, has been the main way in which we have fooled ourselves into believing this and many among us continue to hope that, through technology, we will be able to keep living the fantasy as long as we can. The human and environmental crises around the globe are one indication of the limits of that belief, but another more vivid one was the terrorist attack on the World Trade Center in New York. Whatever else it meant, it did indicate how, if we create technology powerful enough, concentrated enough, tall enough to achieve some good, it also magnifies the power, concentration, and impact of the harm it can cause.

The scale at which things happen matters a lot with utopia. Just as modern architecture is far better at the scale of one building than at the scale of a whole city – where its utopian urges got the better of it – so too is trade much better at the local than the national and global level. The economist Fred Hochberg states: 'the most effective, cost-efficient weapons in the fight against poverty: providing very small business loans to the poorest people – especially women – through microlending… Across the globe, 25 million microentrepreneurs are using loans of very small amounts to increase their incomes and lift their communities… paying their loans back on time at an incredible rate of 99 per cent… The World Bank estimates nearly half a billion microentrepreneurs have no ability to get financial services'[13]. The small-scale incremental process of microlending has achieved more than many utopian efforts at a much grander scale.

This suggests that a new social contract may be most likely to occur, not just at smaller scales than those envisioned in the past, but as a mosaic

of 'utopias', each potentially quite different from the next. The philosopher Robert Nozick, in *Anarchy, State, and Utopia*, argued that we need to allow for these multiple utopias, a world in which individuals or small groups of people can seek their own perfection or ideal society[14]. That will work if, as part of the new contract, one group cannot impose their utopia on another group without the latter's consent, nor can any one group's pursuit of perfection use extraordinary amounts of resources that negatively affect other people, future generations, or the natural environment. Still, a mosaic of utopias, each on its own cycle, has a much better chance of having some of the experiments succeed, with a much lower risk when others fail.

For an analogy of this idea, consider the medieval park, which was usually a place, often with walls around it, in which 'game' – animals of various sorts – ran free and to which hunters would on occasion go. The 'gamekeeper' allowed the natural ecology of the park to exist, and in fact kept out those who would exploit this 'commons' for their own personal benefit. At the same time, there was a kind of bargain between humans who both preserved the ecology and who also, on occasion, killed animals for sport and/or food. In the eighteenth century, the park became, instead, what we know it today: a pleasure ground in which to stroll and to appreciate a highly designed 'nature' in which many native species have been eliminated and many domesticated plants and animals have been placed. The park became a kind of garden, and the gamekeeper became a gardener, who designs and maintains the park with an overall vision in mind.

That switch from a gamekeeper to a gardener also occurred, at least metaphorically, in the way we think of cities. Pre-modern cities were often places that grew through a lot of small-scale, cooperative activities among individuals, often within the outer protective walls. There were minimal 'zoning' laws, mainly to ensure that public ways remain passable, and most of the city arose through individual negotiations among neighbours and construction practices that used local resources. Such towns, because they depended on the surrounding countryside for food and other resources, evolved an architecture and urban form that minimized the land area taken up by development and that maximized the benefit of all via cooperation. Like the park, the city became a place, not of Darwinian survival of the fittest (a zero-sum, non-cooperative game), but of what game theorists call non-constant, cooperative game. People, like animals and humans in the park, coordinated their efforts and found win–win solutions within overall limits.

This could apply to the current situation we are in. Non-cooperative competition often occurs when the scale of something is such that people cannot communicate and coordinate their efforts. That has characterized business in the modern era, where 'competitors' have sought to maximize their individual benefit at the expense of others in a market. It has also characterized the way in which we design cities. To prevent a lot of non-cooperative competition among strangers – those who buy houses or rent floor space or construct facilities – cities have instituted regulations largely aimed at reducing conflict, by clustering similar functions and separating others and by linking them all through a 'commons' of highways and roadways and walkways. Of course, this also generates behaviour in which individuals all try to maximize their benefit at the expense of the commons – by driving their own cars on the 'free' ways, for example, even though, with enough of that behaviour, the public realm becomes degraded, when highways, for example, become clogged and thus dysfunctional. Everyone would be better off cooperating – taking public transportation, for instance – but without people knowing or trusting each other, that cooperation doesn't occur.

To get such cooperation, we might reduce the scale at which decisions get made. Instead of seeing the city comprising large-scale 'zones', we would see them as a mosaic of places, small enough that individuals and groups can come to know and trust each other, and thus engage in cooperative behaviour in which all can benefit in some way. The 'planner' thus moves from being a 'gardener' who tends to the overall order, to a 'gamekeeper' who sets up the rules of the game, helps people at the local level assess the cost-benefit of individual actions, and prevents outside influences from skewing decisions that are in the best interest of the group. It also means looking at the causes of perverse behaviour – exploiting the public realm, for example – and setting up rules that discourage it, and that get people back to communicating, coordinating, and cooperating.

This might be one way of achieving the idea of a mosaic of utopias, without falling into the traps of so many idealized cities. It might also be a way in which to deal with the limits and conflicts that exist in the material world when enhancing the growth of intellectual, social and spiritual life. Because game-theory applies to situations among people in which cooperation and competition must be balanced, it seems particularly useful in cases where people must construct their built environment as well as relate to the natural environment. It seems as if the next step in this would be to think of the rules

of the game by which people could construct their environments within the ecological footprint, in which the rules of the game would include using fewer materials and less space, extended over a longer period of time, and preserving as much as possible for future generations.

A question that always arises with any utopian idea is: what will people do in such places, since so many of them, like the one we have been talking about here, greatly downsize the market economies in which most people now work and depend on? The worry of course is that, without the existing system in place, everything will turn to chaos. In his book *Designing Utopia, John Ruskin's Urban Vision for Britain and America*, Michael Lang concludes with a vision of 'four alternative futures for the world: an optimistic, superindustrial future, based on a continued reliance on unrestrained modern technology; a pessimistic hyper-industrial future based on technology, but leading to societal breakdown and a reliance on a dictatorship of technological elites to maintain order; a pessimistic preindustrial age based on societal breakdown and increased violence and savagery, and finally, a meta-industrial future based on a community based control of technology and a return to small-scale self-sufficient communities'[15]. For Lang, John Ruskin and colleagues of his, such as the designer William Morris, represent the last of these four options. Their ideas also seem to fit most closely the notion of a mosaic of different social contracts.

In each of the other three alternatives Lang lists, we have to give up something of fundamental importance in order to maintain other things. The first alternative maintains technological development to maximize individual freedom, much as we do now, but it 'gives up' nature, threatening to destroy the natural environment upon which we depend in the process. The second alternative maintains technological development and avoids environmental destruction, but demands that we give up freedom in favour of dictatorship, a condition that Hobbes' *Leviathan* would have created and that totalitarian societies try to achieve, along with a lot of environmental damage in its wake. And the third alternative gives up technological development in order to maintain nature and (at least collective) freedom, but results in the kind of chaos and disorder many people rightly fear. The fourth seeks, instead, to balance all three, but as John Ruskin realized, finding that balance is a difficult task, and one that we have had a hard time achieving. It is seems easier to go to one ideological extreme or another – the laissez faire capitalistic extreme of the first alternative or the dictatorial communist

extreme of the second, all the while trying to avoid but unintentionally creating the third chaotic and self-destructive one.

This leads us to the essentially paradoxical nature of all utopias: the more we single-mindedly try to achieve it, the more it eludes us or turns into its opposite – dystopia – whether it was the dystopia of global communism in the past, or now global capitalism. The advocates of the latter might want to deny that global capitalism is utopian at all, that instead it is realism, the 'end of utopia' as Russell Jacoby terms it, but any attempt at applying a single idea or process to the complexity and diversity of life on the planet is, almost by definition, a utopian project, however much its proponents might want to deny that for ideological reasons[16]. Rather than pretend that we can live without utopian ideals, that we have come to the end of utopia, we might see that, in addition to reducing the scale and increasing the diversity of utopias, we need to stop abstracting reality as so often happens with the failed utopias of the past – and the failing utopias we currently occupy.

To see what this might mean, consider the one of the famous paradoxes of the ancient philosopher Zeno[17]. He observed that in a race between fleet-footed Achilles and a turtle, if the turtle starts first, Achilles can never catch him since if the turtle goes x distance, then by the time Achilles reaches that x distance, the turtle has gone y distance further; and by the time Achilles has gone y distance, the turtle has z distance further, and so on. Likewise Zeno argued that an arrow, once shot, never reaches it mark, because the arrow each time has to go half the distance of x to the target, travelling $\frac{1}{2}x$, and then $\frac{1}{4}x$, and then $\frac{1}{8}x$, and then $\frac{1}{16}x$ and so on. Now obviously Achilles could overtake a turtle in a race and an arrow, once shot, can reach a target, yet Zeno's paradoxes also were logical. To resolve the paradox, we have to make a distinction between 'real' space and 'geometrical' space. In real space, Achilles wins and the arrow hits its mark. In geometrical space, Achilles and the arrow don't.

Paradox arises, Zeno realized, in the grey zone between the actual world and our abstraction of it. While we don't always think of our lives in this way, we all live in that grey zone all the time. All that we do as creatures – eating, sleeping, interacting, procreating – are the equivalent of the real space in which Achilles would have won a race against the turtle, while all that we do as conceptualizers – evaluating, calculating, envisioning, trading – are part of the geometrical space in which Achilles can never win, the space in which

we abstract and idealize reality. Both have their place, obviously, but paradox arises when we come to see the abstractions as real or at least as the reality that should govern what we do as creatures. Humans, of course, cannot stop conceptualizing, as we have seen with the utopias we continually construct, but we can stop believing that our abstractions are somehow more real that the 'state of nature' of which we are all a part. For, when we force nature – human or non-human nature – to fit our abstractions, we do damage to both – to ourselves and to other species. If we cannot live without ideals or abstractions, the question becomes one of how to keep both the real and ideal, the 'is' and the 'ought', in play at the same time, not confusing one for the other nor imposing one upon the other, but letting both co-exist and inform each other.

'Poise in the face of paradox is a key not only to effectiveness, but to sanity in a rapidly changing world', writes Michael Gelb in *How to Think like Leonardo da Vinci*, and we might all do well to emulate Leonardo's model of being an artist and an anatomist, a painter and a planner, a sculptor and a scientist, an illustrator and an inventor at the same time[18]. This, of course, runs against the grain of the highly specialized way in which most of us now work, in which we do fairly narrow tasks and get judged on our knowledge or skill in a particular area. To veer too far from one area or another – as we have done in this book, for example – brings on the potential scorn or dismissal of others, so strong are the ways in which we have divided up the world into the abstractions of disciplines, professions, markets, ranks, and so on. As Leonardo discovered at the beginning of the modern era and as has begun to be evident now, at the end of that era, these abstract ways of ordering reality quickly become not just useful tools in order to accomplish certain tasks, but ends in themselves, with many who will protect them from any boundary crossing or hybridizing of categories, even though that is how most of these categories arose in the first place. The staunchest opponents of interdisciplinary work often forget that their own fields probably would not exist without it, for almost all new knowledge and understanding comes from combining things once thought of as unrelated, as Leonardo did with abandon.

Design has long been a set of inherently interdisciplinary fields. Almost every design project involves bringing together disparate disciplines in order to makes things in the real world. A design project may typically involve aesthetics and ethics, materials science and engineering, history and philosophy, anthropology and psychology, chemistry and physics, photography and drawing, and environmental science and economics, among others. One

reason why Leonardo da Vinci has long been held in high esteem by designers – apart from his doing a good deal of superb design work – has to do with his thinking so much like a designer, ever eager to apply ideas and information of use from other fields. At the same time, design moves back and forth from reality and abstraction in ways that might give methodological purists apoplexy. Almost every design project starts from an actual condition in the real world – a particular site, a stated problem, a specific set of needs – and then moves to an abstraction, an idea, that addresses the largest number of issues in the most coherent or elegant way, and then back to the real conditions of working out the design idea in detail and producing the documents from which it will be constructed or fabricated. This isn't sloppy methodology; it is a very precise method that could not happen any other way without failing to achieve what society needs from designers.

The writer Hunter Lewis shows how such hybrid methods and combinatory modes also apply to human values. In his book, *A Question of Values*, he points to six different 'value' systems that guide people: values based on authority, logic, sense experience, emotion, intuition, and science[19]. While Lewis remains ecumenical in his evaluations of each of these value systems, it seems clear from his analysis that we get into trouble when we take one of these values as the basis for all human action, whether it be the Nazi's emotional appeal to the German fatherland, Islamic fundamentalists' call for obedience to the authority of the Qur'an, or a hedonist's single-minded focus on sense experience.

Near the end of the book, Lewis shows how people such as Gandhi and Einstein developed hybrids of these values. Einstein combined intuition and sense experience into a kind of neo-Buddhism characterized by a rejection of personal desire and an espousal of disinterestedness, a rejection of logic and simple experience, and a belief in the power of intuition. Gandhi, in turn, combined intuition and emotion, with his notion of 'detached action' garnered from his reading of the Bhagavad Gita, with the 'Karma yoga' idea of combining revolution with nonviolence, and nationalism with a concern for one's enemies. Einstein and Gandhi's friendship may have stemmed from their sense that each was seeking a hybrid set of values in the face of singular values trying to dominate – and in-so-doing, destroy – the world.

Hybrids, like paradox, seem too messy to many people, something that isn't clearly one thing or another. But in a complicated and increasingly web-like

world, hybrids may offer the best options for us. That does not mean that we need to be all things to all people. As Einstein and Gandhi show, they hybridized a couple of the six general value systems, not all of them. But it does mean accepting paradox and recognizing that the world today demands that we keep seemingly opposite ideas and values in mind at the same time. Design is a way of doing so, of not 'resolving' value conflicts, but mediating them, allowing different values to co-exist and interact in ways that enable us all to benefit.

In some ways, this has been going on steadily in places with intensive immigration, such as North America. In D. W. Meinig's book *The Shaping of America*, he writes about how the agricultural, property-based culture of Europe met the hunter/gatherer, ecology-based native culture in North America[20]. We know that the Europeans, via disease and technology, completely overwhelmed the native Americans and eventually divided up the continent into mostly private plots. But as the two cultures interacted, each changed the other even as one prevailed. This is particularly relevant today. While human populations have always migrated, we are going through a new and almost unprecedented wave of global migration as people can now move and settle almost anywhere, in part out of affluence and choice and in part out of desperation, with no other good options. Global capitalism, carried by modern communication and transportation around the world, has been the 'conqueror', but the 'conquered' are having an impact on the conquerors. In North America, even as Europeans conquered the native Americans, the latter's freedom and mobility, their lack of possessions, their concern for the natural environment, and their sense of the spiritual in nature – all of these affected the Europeans who came here, leading to the paradoxical mix of attachment to property and material possessions along with an urge to be free of property and attachments, to detach from them and to take to the open road.

Design, too, has begun to reflect this conquering of the conquered. The extraordinary interest among especially young designers in sustainability involves a mix of high-tech energy-saving technologies, with low-tech lifestyle-changing ones that recall what native people on the North American continent had evolved for thousands of years. This latter version includes living lightly on the land, leaving no trace behind, using nothing that doesn't biodegrade, living with very little, and having no property beyond what we need for actual shelter. Events like the Burning Man gathering in Nevada, music festivals, and other temporary festivals that occupy a place for a while

and leave without (much of) a trace have become symbols of this ethic. Nor is this a new or strictly North American, native American influenced trend. In the utopia that Francis Bacon never finished upon his death in 1626, *The New Atlantis*, he envisioned a community based on the understanding of nature through science, as opposed to its domination through technological control[21]. The utopia of science that Bacon envisioned has evolved into the dystopia of our current fossil-fuel-addicted civilization, and maybe the time has come to write a new ending to Bacon's unfinished work, imagining a new 'New Atlantis' that would use science to so thoroughly understand nature and our place in it that we would learn to live seamlessly and sustainably with it. Science would lead us to ecologically friendly technologies, rather than to ecologically destructive ones.

The architect William Hubbard sheds some light on how designers might help with this rewrite of our future[21]. 'As designers', he says, 'we hold in our heads the full panoply of paradigms of order and the narratives which they are a part... [we] can either match a paradigm to a living pattern (as we do with clients) or... match a living pattern to a paradigm... for an architect, this conformance of life to paradigm is not an onerous task but a positive joy. It is the good life for an architect'. He goes on to say that 'All of this we do for ourselves, in the interest of achieving fulfillment... and yet, when called upon to perform... for our clients, we architects constrain ourselves to the provision of form, the permanent stuff of "architecture"... architects could do for others, in practice, what they so naturally do in life for themselves. Life and practice conducted to the same set of principles. The very definition of the good life for an architect'. In other words, what architects and designers generally do best is to seek a paradigm or set of principles for how to live and then attempt to create it in reality. This explains the interest among many designers in utopia – the ideal we seek to create – and in ethics and values, which guide us in how to live a good life. It also explains the desire of many in the design community to live our own lives according to these principles, rather than just practise them for a brief period during the week and then forget them the rest of the time. Hubbard challenges us to do for others what we do for ourselves, which is a practice focused not just on appealing form, but on the values and paradigms from which the appropriate form might then emerge.

And perhaps most important in any new social contract or utopian vision we might ascribe to, is an acceptance of our imperfections. It seems like the ultimate paradox to say that a perfect world will be imperfect, but as any

human construct, that is what it will be, no matter how hard we try to prevent it. As Martin Luther said, 'Only God could love a creature so imperfect as Man'. The sustainability movement has often been criticized for putting forward a utopia that some people think demands that we be too perfect, never wasting anything or never affecting the planet negatively. Perhaps some of the most radical environmentalists, who sometimes seem outright hostile to human society, may want this. But Luther's comment suggests that what we need is not just a smaller-scale, more diverse future, one more open to paradox and hybrids of all sorts, but also a less perfect, a more human and less abstract future. Such an 'imperfect' utopia would be one that accommodates the imperfections of people, accepts their diverse needs and interests, and refuses to set up any ideal way of being, of looking or living. It would also be quite the opposite of contemporary commercial culture, that holds up for all of us to aspire to the perfect house, the ideal body and face, the spotless life. That unachievable utopia, piped into almost every house every day via television and advertising, asks us all to measure ourselves against some perfect model. None of us can sustain this in our owns lives any more than we can sustain it collectively, and it may be only by accepting our imperfections, and constructing the world accordingly, that we will be able to live more sustainably as well. The essayist Ed Rothstein has argued that 'the most challenging political question in a knowingly wary world is how to envision progress without envisioning a utopia'.[22] If we are to envision progress without also destroying ourselves and many other species as well, it will demand a different kind utopia, a mosaic of different utopias that are not about a singular, abstract ideal, but a social contract with our imperfect selves and with the rest of this imperfect, incredible, and irreplaceable planet.

PLACES

City

Beware the barrenness of a busy life.

— Socrates

I grew up in a suburb, but ever since becoming an adult, I have lived in cities – and loved them as microcosms of the world. In ancient Greece, cities were, as Socrates knew, places in which a great diversity of people came in contact with each other – places of social interaction, economic exchange, political discussion, and intellectual debate. Such cities reflected a view of the world as a whole made up of distinct places, each with its own ethos and identity.

The modern city represents a very different view of the world. At first glance, they appear to have the density and diversity that we associate with cities

across time. Their tall towers maximize the density of people on a relatively few number of blocks, while the roads and parking lots provide ample space for interaction among people. But, in reality, these cities – with a few exceptions – are fundamentally different from those of the past. Their overall density has declined over the last half-century, as suburbanization, parking, and property abandonment have eaten away at the concentrations of people who once lived in them. And the major public space – the street – has become mostly devoted to the efficient moving of people and vehicles.

So we have cities in name, but not in reality, however large and imposing they may appear. One reason for the disappearance of the city has to do with how we think of the world: not as a series of places in which a diversity of species live, but as a series of systems separate from and competing with each other. This idea has given form to the modern city, with its highway system, bus system, utility system, waste-removal system, pedestrian system, park system – each designed rarely with the others in mind, and instead with the intent of moving people, goods, or matter as quickly as possible into, through, and out of the city.

Like seeing the human body as a set of systems and not the whole person, we have looked at cities this way and wondered why they seem so devoid of life once most of the population has efficiently vacated them. If we drain the fluids and marrow from the systems of the body, the person dies, and that is exactly how we have killed the city. Socrates, were he here, would ask questions we have largely forgotten how to answer. What is the soul of the city? Where is its virtue? Where should the ignorant person, asking such questions, go to find the answers? The answers don't lie in the library. They lie in us, and we need to be reminded of them, as Socrates liked to do.

We are the city and just as we see ourselves as more than the systems that comprise us, so too do we need, once again, to see the city and the world that way. First, we need to subvert systems we have so unthinkingly put in place. We need to increase congestion, slow traffic, eliminate parking spaces, and widen the sidewalks beyond reason – whatever it takes to get people to walk, stop, look, and listen. Second, we need to greatly increase density and diversity. Throw out single-use zoning, get rid of height restrictions, and provide for the poor as well as the wealthy on every block. Aim for a richness of activity and life, not a series of ghettos for the rich and the poor.

As we need to reform cities, so too do we need to re-conceive the world, not as a set of systems, but as a series of integrated and interconnected places. The stakes here go beyond making a better city in which to live. They involve our rediscovering how to live in harmony with each other and with others on an increasingly over-crowded and over-taxed planet. The more density and interaction we have in cities, the greater our chances of surviving and even thriving in the face of enormous environmental changes. Otherwise, we will continue, paraphrasing Socrates, busily going about creating a more barren world.

Suburb

The virtue of justice consists in moderation, as regulated by wisdom.
— Aristotle

The suburb can be subversive. As its prefix 'sub' suggests, it can serve as both a 'substitute for' the city – the 'urb' – or a 'subordinate to' it. With more people, at least in North America, living in suburbs, such communities have, indeed, become substitute cities, even though they all depend upon – and remain subordinate to – the city at their centre. Many people like suburban living because of the privacy and open space it offers, although that, too, may be no substitute for the city. Most of the open space remains private property, off limits to others, and so the appearance of openness co-exists with the reality of there being less publicly accessible space than in urban centres.

The privacy of suburbs also isn't always what it seems. Aristotle made the distinction between the public life of politics and the private life of domesticity, and we have, in some ways, zoned our communities accordingly,

with the public, producing life of work kept distinctly separate from the private, consuming life of family. But those two aspects of life are not equal. The words privacy and privation share the same Latin root word – 'privo' – which can mean both 'to deprive' and 'to free', and so, while the suburbs free us from some of the pressures of the city, they also deprive us of something fundamental: the public life that Aristotle saw as central to our being human.

If suburbs fall far short of Aristotle's ideal life, they do express another aspect of his thought. He argued that leading an ethical life involves finding the mean between the opposite extremes of excess and deficiency: courage as the mean between recklessness and cowardice, for example. In many ways, the suburbs represent the same search for a mean between extremes. Such communities literally and figuratively lie between the city and the country, and may reflect for some a desire to find a middle ground between congestion and isolation, the artificial and the natural.

A paradox of the suburbs lies in their embodying the ethics that Aristotle saw as essential to public life, while giving it a private form. In that sense, suburbs, for all of their allusions to traditional ways of living, represent a radical experiment, based on a new interpretation of what constitutes a good life. The life that people once lived out in the open, in shared public space, many now live inside the home, in private, with technology such as cars or computers linking us together.

Yet places that try to strike a mean can also become mean places. Crime rates, divorce rates, levels of addiction and abuse, even the existence of poverty and hunger – the very conditions many suburbanites have sought to escape – have risen in many suburbs, made worse by the fact the such communities often won't admit to or develop the capacity to deal with these problems.

The lesson in this is not that the suburban experiment has failed, but that its meaning has changed. As suburbs increasingly face the same problems of cities, the extremes have shifted and so must our search for the mean between them. The extremes may no longer be geographical (city or country) or metaphorical (artificial or natural), but rather ethical. Excesses of wealth and poverty, of privilege and privation: these have become the new extremes, and from this perspective, the suburbs now embody the very excesses many of their residents have hoped to avoid.

We need, instead, a new kind of suburb, one that tries not to be a substitute for the city, nor subordinate to it. Such a suburb would be a place that had the courage to use its wealth to help the poor, to extend its privileges to those who lack them, and to end its wasteful consumption of resources so that we all have some hope of surviving the resource-starved future that lies ahead. When suburbs, too, become microcosms of the world, they will finally not be 'sub' to anything else.

Town

The greatest wealth is to live content with little.

— Plato

I have long idealized the small town, even though I only briefly lived in one. Plato saw the small and relatively self-sufficient community, with no more than 5040 people, as an ideal size to foster what he considered the perfect republic. And utopian thinkers, ranging from Thomas More to William Morris, have repeatedly turned to the small town as the place in which we could truly achieve a good life.

Not that we have to look to writers to tell us about small towns; they occur almost everywhere, and so they are certainly not rare. Despite that, we seem to yearn for it at the very moment it seems as if it might be left behind. Plato wrote about his ideal *Republic* in Athens, a city many times larger. And More and Morris wrote in centuries characterized by the rise of large market and

industrial cities, each luring people away from small towns by the promise of work.

The idealizing of the small town in our own time has many of the same characteristics. With post-industrial cities and suburbs growing rapidly and draining population away from rural areas, we find many people yearning for town life, evident in the popularity of 'new urbanism', with its evocation of the safety and security we associate with small-scale settlements. We often most want what we are most afraid of losing. We have to also beware of what we wish for. As writers like Sinclair Lewis to Sherwood Anderson have reminded us, small towns can be small-minded, as closed-off to new people or ideas as they are from other places. And that two-sided character emerges in Plato's first idealization of the small town. He would have the perfect polis led by philosopher-kings, people supposedly wise enough to do what is right and yet possibly presumptuous enough not to care what others think.

Rather than idealize the small town, we need to realize what it can and can't do, and what it does and doesn't mean. Despite the hopes of some utopian writers, small settlements can never substitute for the city, for its diversity and intensity. But towns offer something no city or suburb can, which is potential self-sufficiency because of its proximity to sources of food and water, and its supply social capital and natural resources. In an era of mega-cities, in which much of the population growth will occur in settlements that already have many millions of people, it sounds strange to talk about the self-sufficiency of small towns. But as we look at the environmental footprint of human settlements, we face the dilemma of cities being efficient, but vulnerable entities, using relatively fewer resources per person than more sprawling settlements, but also requiring highly complex systems and extensive supply chains in order to function at all.

Small towns have some of the same efficiency, but quite a bit more adaptability and flexibility. If distant resources dry up, if supply chains get severed, if complex systems break down, small towns have a much better chance of surviving than large cities, as we have seen repeatedly in the past. Cities rise with empires and cities shrink when they fall. The current 'empire' of the global economy has fuelled the influx of people into cities around the globe, but with an ecological footprint already 20 per cent larger than the globe itself, that economy stands on an extremely shaky foundation.

We need to stop idealizing towns and instead, learn from them, readying ourselves for the time when we may need to return to them as the refuge they have always been in times of trouble. And this is what is good about towns. While some are enlightened and some not, some more sustainable and some less so, small towns can provide a safe haven at a time when we may all need one someday.

Country

The man who does evil to another does evil to himself.

— Hesiod

We often think of the country as somehow eternal, with farms dotting the landscape and fields brimming with crops with little apparent change from year to year. But the country, in fact, is undergoing an enormous realignment. Farming has become more industrialized, with global competition driving down prices; more costly, as equipment and fuel become increasingly expensive; and more vulnerable, as climate change has increased the unpredictability and severity of weather. The production of food, once a stable occupation, has become a harrowing experience.

This isn't the first agricultural crisis we've faced. When the farmer and poet, Hesiod, wrote *Works and Days* some 2700 years ago, during a period in which farmers had run out of arable land in ancient Greece, he envisioned human history in five stages, moving from a golden age of peace and abundance to a time of scarcity and violence. That may have reflected his experience, but in our own time, we face both abundance and scarcity at the same time, both too

great a quantity of food, the result of global trade and genetic engineering, and too little diversity of food, with just four grains – corn, soybeans, wheat, and rice – comprising two-thirds of our calories.

Across the countryside, peace and violence also co-exist. Behind the impression of bucolic calm lies the precipitous decline of the family farm, and with it, the decline of many rural communities, with not enough residents or economic activity to remain viable. At the same time, while the fields of crops seem the same every season, the environmental health of the countryside has plunged, with polluted watershed, exhausted soils, and the loss of species all regular occurrences.

Hesiod advised hard work as the solution to the agricultural crisis of his day, when the Greeks had to establish colonies to expand food production. But our agricultural crisis has led to just the opposite, with very few people able to make a living farming, and with those that do spending most of their time driving large pieces of equipment back and forth across the landscape. Productivity is up and hard labour down, but the 'green revolution' that has swept agriculture has, like all revolutions, destroyed a lot, including our sense of connection to the land and our understanding of local cuisine and seasonal food.

This represents what the writer Michael Pollan calls 'simplification', in which we reduce the variety of nature to a few species planted over and over again[23]. While this may drive down prices and increase profits, it isn't good for human nutrition, farmers and their communities, and nature itself. The more we simplify, in other words, the more complexity and unintended consequences we set in motion. Pollan urges us to return to the traditions of locally based agriculture and culturally based cuisine. This may not be about going backward, however, but about going forward in a new, more holistic way.

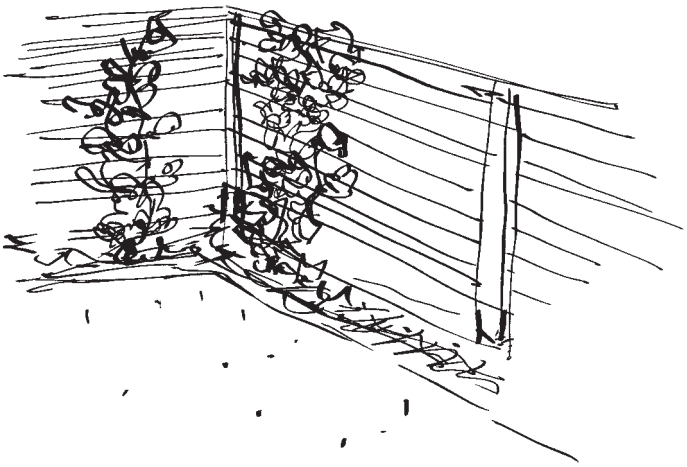
Industry has begun to shift away from low-cost, globally distributed, mass-produced commodities to high-value, locally made, mass-customized goods, and that same shift needs to happen in industrialized agriculture as well. This may lead, as Pollan says, to our paying more and eating less, but that would be good for us, for our communities, and for the planet. Circumstances may force this to happen. The agricultural crisis of the Greeks came when they ran out of land, and ours will truly come when we run out of inexpensive oil, which has propelled commodity-based agriculture. The Greeks colonized new

territory, and we must move into new areas of production: generating wind power, converting solar power, and creating bio-mass fuel, as well as planting seasonal crops and native species.

The countryside might then become a lot like it once was, with diverse, small-scale production suited to local needs and climates. It would not only be a place to grow crops, but also a place to help us grow into a new, more resilient and sustainable way of being.

PRINCIPLES

Instead of cutting us off from nature, connect us to it



The social sciences have engaged in a debate about what matters more in our development as human beings: nature or nurture, our genetics or our environment. As is often the case is such debates, the answer is both; we are all a product of our genetic makeup as well as our interactions with our environment. The real debate is: where do we draw the line between the two? How more or less important is one over the other? While that may differ from one person to the next, the differences among us, in this regard, may matter less than the continuity between our inner nature and our outer one. Both our genetics and our environments have evolved and both influence the other in an endless dance. We are all nature and nature nurtures all of us.

This continuum of nature and nurture makes our efforts at wiping away the past and sealing ourselves off from nature particularly ironic. However much we might want to create a brave new world, we all remain an inseparable part of the world out of which we evolved. And however much we might want to live in air-conditioned, centrally heated, hermetic environments, we all remain an inseparable part of the world that is outside our window. We cannot live without the nurturing of nature, nor, it seems, will nature last much longer in any recognizable form unless we do a better job of nurturing it.

Sealing ourselves off from nature is a bit like consciously trying to forget our nurturing, who raised us and even who we are. John Rawls used the notion of amnesia as the basis for his theory of justice, realizing that if we all really did forget who we are, we would all, out of self-interest, act more altruistically than we do now, since we might be the least capable of taking care of ourselves. But is the opposite also true? Were we to have a perfect memory of all of our ancestors we would also see that our nature and nurture is far more varied and diverse than we might think. As recent genetic testing has shown, almost all of us are a mix of races, and going far enough back, we all have the same ancestors. The more we connect with nature and the long line of nurturers in our past, the more reverent we might be towards them and towards ourselves.

Instead of reducing the ecological diversity of a site, improve it

As a child, I lived in a house with a thicket of trees behind it, large enough for me to imagine it as a vast forest. But one day, bulldozers arrived and started cutting down most of the trees in preparation for the construction of new apartment buildings, and as I watched the trees fall, one by one, I saw how small that patch of woods really was. But even more memorable was how barren the land looked after the buildings went up, the asphalt went down, and the sod and saplings went in. What I and the other boys on my street imagined in that woods seemed much richer and varied than what the architects and landscape architects had imagined for that apartment complex. It wasn't that my playmates and I were particularly creative. It was just that nature had evolved so much more complexity in such a small area, in contrast to what seemed like the conscious simplification by the apartments' designers.

We have tried to simplify the world, as Michael Pollan has argued, in order to control it, even though that has led to all sorts of unintended consequences,

including the complex climate changes and species extinctions we have helped trigger as a result. The apartment complex behind my childhood home represented that simple-minded simplification, taking out mature trees in order to plant immature ones, and removing ground cover in order to plant turf grass. Along with the eradication of the many plant species in that woods came the loss of habitat for the animals that used to live there. And so, while we created more housing for people with the construction of those apartments, we actually created less housing overall by taking out so much of what other species called home.

What we need to simplify is ourselves: our own lives and our own expectations. We all know how to do this, for we largely lived this way as children, especially when playing with others our age. But as we grow up, we often shift from being simple ourselves to trying to simplify everything else around us, to the detriment of every other species including our own. Maybe like that woods that grew up behind my childhood home, we need to grow up to be as simple as we were as children and as rich as the forests of our youthful imagination.

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Chapter 6

The needs of duty

My grandfather worked in architecture from 1916, when he was 15 years of age apprenticing in the architectural office of his foster father, until 2002, when my grandfather retired at 101. He used to say that architecture kept him alive, and it certainly did for a very long time. He clearly loved his work, most of which involved the design of churches, but he also had a strong sense of duty to it, so much so that he went into the office almost every day of the week, once getting stopped for speeding by the police early on a Sunday morning on

his way to work at the age of 96. That sense of duty, of having a purpose larger than oneself, is, as Immanuel Kant argued, the basis for leading a happy life as well as an ethical one. While we have all sorts of interests pulling at us, and plenty of opportunities to act in ways that benefit us personally at the expense of other people or the planet, Kant reminded us that we have a duty to do the right thing, however much it seems to go against our own interests. That idea lies at the heart of all professions, which are licensed by the government and given a monopoly over a certain area of practice, in order to do the right thing and to look after the public good, something that will become increasingly important as the old systems break down and new, more resilient ones evolve. In such a setting, the duty to do what is right – not just with other people, but with the planet as a whole – will be in high demand.

That demand may, in turn, alter the focus of what most professionals do. In a world that values connectedness and efficiency, most professionals have emphasized our technical expertise. Architects, for example, have taken important steps towards getting ready for a more sustainable and resilient future by designing more energy-efficient building envelopes, more eco-friendly interior furniture and finishes, and more pedestrian- and transit-oriented communities. All such efforts have real value and need to continue, but technical solutions mainly address the supply side of the problem: what we, as designers, know how to provide. But unless we also attend to the demand side – to people's desires and expectations – we will never achieve a more sustainable and resilient future. The most energy-efficient and environmentally friendly buildings will do us little good if we do not address the sheer quantity of materials, space, and resources we produce and consume in the satisfaction of needs. Hybrid Hummer cars or energy-efficient 10,000-square-foot houses will not get us where we need to go.

Designers first encounter the lifestyle expectations of clients in the project brief, usually in the form of a list of needs and requirements. We often see the design process starting at that point, with the designer organizing and then giving physical form to the client's needs. Rarely do we, as designers, question the project brief or ask if this is the right thing to do, usually because we assume that people know what they need. But, in fact, most design projects mix human needs with social norms and unquestioned desires that, unless examined at the beginning of the process, can result in clients often getting something other than or more than what they really need. Every design project is an opportunity for self-reflection and personal growth on the part

of both the client and the designer, and that has to begin at the very start of a project, when the potential for new insights and understanding is the greatest.

The economist Manfred Max-Neef has outlined one way of thinking about our needs. He has argued that our real needs are common to all people, readily identifiable, and relatively few in number, consisting of: subsistence, protection, affection, understanding, participation, recreation, creation, identity, and freedom[1]. How we satisfy those needs, however, differs dramatically from one place or time to another. 'What is culturally determined', he writes, 'are not the fundamental human needs, but the satisfiers for those needs. Cultural change is, among other things, the consequence of dropping traditional satisfiers for the purpose of adopting new or different ones'. He goes on to identify different kinds of satisfiers. 'Synergistic' ones address more than one need simultaneously: public education, for example, involves understanding, participation, creation, and identity. 'Singular' ones address only one need and no others: the game of solitaire might provide us leisure but little else. Meanwhile 'inhibiting' ones address one need to the exclusion or destruction of others: governmental wire-tapping of its own citizens might increase protection from terrorists, but destroys our freedom.

Max-Neef also points to the large number of what he call 'pseudo-satisfiers', things that appear to satisfy one or more need, but that remain empty or that simply encourage us to seek more of the same. When we look across much of what our consumer culture produces, a huge amount of it consists of such pseudo-satisfiers. We have many products that promise one thing and deliver something else: cars that promise freedom, but end up making us dependent upon them; cigarettes that promise leisure, but end up causing disease; or radio talk shows that promise understanding, but end up instilling prejudice. Many other products give a kind of empty satisfaction: highly processed foods that may fill us up and seem to address our need for subsistence, but end up giving us very little nutrition; video games that may provide us with leisure, but end up making us more stressed; or advertising that may be catchy and even creative, but that always seems to make what it is promoting seem better than it really is. Most of us tolerate these false forms of satisfaction as part of the background noise of our culture, but in a future of even greater environmental and cultural change, understanding Max-Neef's distinction between need and its satisfaction will be critical, since we will have to become more creative in satisfying needs, given the limited resources we will have at our disposal, even as we will need to become more accepting of the universality of people's basic needs.

Satisfiers that inhibit or destroy other needs or that turn out to be pseudo-satisfiers can hinder or harm not only people, but the natural environment as well. Much of the enormous waste stream of paper, packaging, and throw-away products comes from pseudo-satisfiers, things that people bought or used and quickly discarded because they served no real need. At the same time, the energy used in manufacturing and shipping all of this material, which might be used once and will end up sitting in a landfill for thousands of years, demands a great deal of the fossil fuels we burn. The average American, for example, consumes over ten times the resources of a person in less-developed countries such as India or China, all because of different ways these cultures have gone about satisfying the same needs. Nor are 'green' technologies necessarily better, for, while they can make things more environmentally friendly, the quantity of goods can remain so high and the quality of the satisfier so low that we can end up using almost as much energy and generating just as much waste as we did before we became 'green'. What we need to examine critically is a process that the critic Michael Ignatieff calls the upward spiral of needs, in which luxuries in one generation or in one culture become necessities in another[2]. Caught up in this upward spiral, we start to lose sight of actual human need, and begin to think, instead, that what we need are the satisfiers that those around us have and that our grandparents would have considered luxuries.

Challenging the statement of need of a client thus becomes both a critical and complex act for designers – critical if we are to ever achieve sustainable ways of inhabiting the earth, and complex because we lack the tools to differentiate between real needs and false ones, between a pseudo-satisfier and the real thing. The duty ethics of Kant offers one very useful tool in making this distinction[3]. Kant offered what he called the 'categorical imperative': that we do what is right, regardless of its consequences. One way of doing right consists of respecting others and not using them for our own purposes: 'Act in such a way', he wrote, 'that you treat humanity, whether in your own person or in the person of another, always at the same time as an end and never simply as a means'. Another way of judging the rightness of a decision, Kant argued, is to ask if it would still be right were it a universal law, applied to everyone equally: 'A rational being belongs to the kingdom of ends as a member when he legislates in it universal laws while also being himself subject to these laws'. With those two ideas in mind, we can begin to evaluate what constitutes a need versus a desire, and a satisfier from one that only appears as such.

Kant's ethics provides us with a useful tool in wading through the enormous number of pseudo-satisfiers, products and services of every conceivable form and function generated by modern commercial culture. Although offered for what seems like a worthy goal of maximizing our convenience, pleasure, and freedom of choice, the plethora of goods many of us have available to us can have the opposite effect of making it harder to decide what to choose and, paradoxically, making us less happy or satisfied as a result. As recent research on the subject has shown, happiness does not come from simply having more – more possessions, more choices – but from having more of what has meaning to us[4]. The shear variety of options available to us may arise out of a good intent; given the diversity of people's interests, manufacturers and service providers often like to offer the greatest range of alternatives for people to chose from: I might like blue, you might like red, and so companies want to make sure their widgets are available in both. But are those meaningful differences? Haven't we, in the process, created a system in which we have a seemingly infinite number of superficial choices with very few fundamental ones? We may have all sorts of options in terms of what we can get in a new car, but in most American cities, at least, if we don't have an automobile, we have very few other options of getting around: a lot of choices and no real choice at all.

Designers struggle with this paradox all the time, since what we do both feeds the exponential growth of surface choice and falters when what we do falls outside of what commercial culture considers to be an acceptable choice. We have to make our own way through the often-overwhelming number of options we have available to us as materials and products for our selection, becoming the victims of the very explosion of choice that we have helped manufacturers create. At the same time, we have to judge how far we can push real alternatives to what a majority of people might be familiar with. This is particularly evident to recent graduates, whose design education has taught them to be critical of what exists and speculative about what could make a fundamental difference with something. When graduates take their first jobs after school, they often find a range of product options far broader and transformational possibilities far more limited than what they knew in school. That may be fine were there little need or prospect for change, but given the enormous environmental and demographic challenges we will face over the course of this century, we might all be better off with fewer superficial choices and many more fundamental ones.

A similar paradox arises in the options available to us in terms of how we live. In a consumer culture that tries to maximize a certain type of choice, we have

tended to preclude other choices not in line with a social milieu that is, as the sociologist Max Weber observed, 'dominated by the making of money, by acquisition as the ultimate purpose of life'[5]. As we saw with the owning of a car, which is really not a choice since there are so few other options to traverse our car-oriented landscape, so too with other major events in our lives. If we don't own a home, at least in the USA, we don't have access to several tax advantages and the equity that the government assumes we will have upon retirement; if we don't have a credit card, there are many things we can't reserve, lease or rent; and at least in the USA, if we don't have a full-time job, we may not have affordable healthcare available to us. Our systems have been designed, in other words, with a particular notion of how we should live and work, and any variation from that is made extremely inconvenient, if not practically impossible. We are free to do what we want as long as it is what everyone else is doing and what our political and economic system expects us to do.

This perverse notion of freedom also violates both of the categorical imperatives that Kant thought lay at the core of all ethical behaviour. Rather than treat others as an end rather than a means to our end, modern consumer culture leads us, unwittingly, to do the opposite, as our pursuit of the lowest possible prices leads to the exploitation of people often in a far-off country, the extinction of other species through the elimination of their habitat, and the exhaustion of resources that future generations will need. Even if we embraced Kant's version of the golden rule of treating others as we would want them to treat us, we have almost no way of knowing whether our choices are doing so or not. Likewise, rather than evaluate an action based on whether or not we could sustain it were it to become universal, we have proceeded to design things to meet individual needs and particular contexts without realizing that just in the last few decades, we have achieved a level of consumption beyond what the planet as a whole can support. While it is hard to know which of our actions have led us to this point, it is clear that were our level of consumption to become universally available to the rest of the human population on the planet, we would quickly deplete all of the fossil fuels and fresh water available to us, and do serious and long-term damage to the global ecosystem.

At the most basic level, then, most of us in developed nations are engaged in a profoundly unethical way of life, one that we cannot justify to others who are the means to our ends or justify in terms of the planet, which cannot sustain this rate of consumption as it now stands, let alone if it were universally available. Some of us may feel the duty to help get us out of this mess, but

how? Kant's ethics have another tool we can use here. He argued that there is really only one human good – a good will – and that will involves intending to do what is right regardless of its consequences. While we call all of the stuff we produce and consume 'goods', they are really only good, as Kant might say, if we have the will or intention to use them in ways that enhance the lives of others and in ways that are universally applicable to all. What if, in other words, we had enough of a will to purchase goods based not just on what we need, but also on how they met the needs of everyone involved in their making and what impact their manufacture, use, and disposal had on the planet and on future generations? These are not hard questions to answer. Manufacturers know or at least know where they can get the information about where all of the materials in their products come from, who made them, what environmental effects they might have, and how long before the goods biodegrade. Rarely do consumers ask for such information, however. A labelling requirement on all products, such as what already exists for nutritional or product safety information, that covered the environmental and societal impacts of the products, would enable us to gauge the effects of our choices on others and probably change for the good the way in which many things get made.

In many pre-modern cultures, such decisions were easier not only because people had relatively fewer choices, but also because the goods they made and used came from nearby. The moral sentiment that Adam Smith thought of as essential to the proper functioning of a capitalistic system prevented, mainly through peer pressure, the exploitation of people by employers or the exhaustion of vital resources by a few. What we need now, at a global level, are the mechanisms that would enable such moral sentiments to work worldwide. Most people will do the right thing, as Kant said they would, if we have the information we need to make the right choice, so we must extend the notion of consumer health and safety to include that of the producers of our goods as well as that of the planet itself.

Utilitarian critics of Kant's ethics like to point to the paradox that, in treating everyone as an end in themselves, we can end up doing more harm by not being willing to sacrifice a few in order to save a larger number of others. That is always a possibility. It may be that in order to do good in one area, such as only buying products good for the planet, we may up creating harm in another area, such as putting people who are already poor out of work because the products they made had much worse environmental effects. But these kinds of conflicts are usually short-term. If we see as our duty the responsibility to

do what is right for other people and the planet, those goals are not mutually exclusive. A strong effort to help the environment might put some people out of work temporarily, but new jobs will be created more in line with what the environment can sustain. Likewise, ensuring that people have jobs first might delay some environmental improvements, but over the long-term, we can only sustain those jobs that enable us to sustain ourselves on the planet, and so eventually, the two come into alignment. Those who pit the economy against ecology do so only out of the most myopic view of things. Ultimately, we have a duty to align them or we won't have either one.

The alignment of economics and ecology will occur most quickly with a refocus on our real needs, not just human needs, but also the needs of non-human species and of people yet-to-be born. Although we have more than 6 billion people on the planet right now and are headed towards more than 9 billion by mid-century, an economics based on the satisfaction of needs, even of that many people, is environmentally sustainable, if we make the right choices. So let's return to needs that Max-Neef has described and use Kant's ethics as a way of distinguishing between real satisfiers and those that either don't satisfy a need or that inhibit more needs than they address. See this as a type of design exercise, for designers, too, start with a list of needs, and then look at the economic or budgetary implications as well as the environmental or contextual issues related to the project before starting to work. As in design, there will be no right and wrong answer in this exercise, but rather ideas that may be more or less compelling, with some addressing the greatest needs more elegantly than others within the economic and environmental constraints.

One advantage of Max-Neef's list of needs is that it talks about their satisfaction in both ethical terms, looking at the qualities that comprise each need and the actions we can take to address them, and in design terms, looking at the things that can satisfy each need and the settings in which that satisfaction normally occurs. This reinforces the claim in this book that ethics and design will become increasingly central to our deciding how best to respond to people's needs in an overcrowded, overburdened, and less forgiving world. Max-Neef also makes an important distinction within each of these areas, recognizing, on the ethical side, that we need to take into account issues of being as well as becoming, virtues as well as actions, and on the design side, that we need to look at both products as well as environments, things as well as settings.

Let's start with the first two on Max-Neef's list: subsistence and protection needs, arguably the most fundamental of all and yet, perhaps because of that, the two needs with probably the most pseudo-satisfiers wrapped around them, spurring some of the most destructive human behaviour. We all need to subsist, to sustain ourselves physically and mentally with such things as food, shelter, and clothing, and we all need to feel protected, with a sense of safety and security, in order to lead a happy life. And yet, even though these two needs should be the easiest to address and the most universally available, they are often the most difficult for most people to satisfy. We grow enough food to feed the entire human population, and yet many of the world's wealthiest people consume too many calories and many of its poor, too few. Likewise, enough apparel gets produced every year to clothe every person, even though changes of fashion and taste lead some to hoard or too-quickly dispose of clothing and others to live with hand-me-downs. And we make enough building materials to provide everyone shelter, even though relatively few number of people occupy extraordinary amounts of space, while far too many people have to spend too much of their income on shelter or live in much too precarious a condition.

With the ability to meet every person's need for subsistence and protection, why do we have starvation, homelessness, unemployment, poverty, and crime? Kant's ethics suggest at least two reasons. One is that many people, especially those in power, still use others as means to an end. We see this when, for example, politicians cut aid to the poor in order to please a particular voting block or companies cut their payrolls to satisfy investors' profit expectations. Many of the debates that go on in politics revolve around this question of our duty to treat everyone equitably, as an end in themselves and not as a means to someone else's ends, or to try to benefit the greatest number of people, even if a minority are harmed by it. We will talk more about the latter in the next chapter, but we might note here that what often happens, once we give up on Kant's view of our duty to value and honour every individual, a situation can quickly devolve to the point where a relatively few with power use a majority of others as means to their ends. We have seen this happen in the USA, especially in recent years, in which tax cuts for a wealthy few have led to service cuts to large segments of the population, in a kind of reverse utilitarianism that also violates almost every aspect of Kant's ethics of duty.

Professionals can play an important role in countering this. Because of the responsibilities that professionals have to the public as part of receiving a license to practise, we must look out for the interests not just of the few who

might be our direct clients, but of the majority directly affected by what we do and by all beings who might be indirectly affected. It isn't a matter of asking our client's permission to take this larger context into account as we do our work. It is our duty, as Kant would say, to do so as an integral part of being a professional. Designers, for example, can plan for future or alternative uses for what we create so that it can be adapted for purposes other than what a particular client wants, we can specify materials or products that do the least amount of environmental damage while still meeting the needs of the project brief, and we can design into a project ways in which it can be dismantled or recycled in the future even if not a part of a client's current thinking. Valuing the subsistence and protection of people in everything that we do will need to become the baseline expectation of all professionals, especially in a future when there will be less to go around for a much more overcrowded planet. The professions have always been the main force in modern societies to balance the profit motive of businesses and the political manoeuvring of governments, and we must take that role seriously and recognize the power we have to look out for all, even as the others look out for their stockholders or their constituents.

It may not seem practical to extend Kant's ethics beyond every human being to every being – or to use Peter Singer's more limited term – every sentient being as an end in itself and not a means to another's ends[6]. Almost every human action can potentially harm another, and short of extreme measures, such as the monks who sweep the ground in front of them so as not to step on any insects that might be in their path, we cannot help but negatively affect the lives of others. What matters, according to Kant's ethics, is not the consequences of what we do, but our intention in doing so. If we don't intend to harm others and do all that is reasonable to guard against doing so, we have done our duty, even if we inadvertently hurt others.

The importance of our intentions becomes even more central to some of the social needs Max-Neef identifies: the need for the affection of friends and family, the need for participation in our neighbourhoods and communities, and the need for identity with our home and work places. Humans are, as Aristotle said, an inherently social animal and our intentions to do good can get compromised or corrupted by social and economic forces that can work against our best interests or those of our family and community. This leads to the paradoxical situation in which so much of what we think of as essential to a good life and that we pursue with the best of intentions often end up

creating the opposite of what we wanted or intended. As the economist Robert Frank has argued, 'The problem is that we work too many hours, save too little, and spend too much of our incomes on goods that confer little additional satisfaction when all have more of them'.[7]

We may do so, in part, because of those goods are, as Max-Neef argues, pseudo-satisfiers that don't deliver on what they promise. But we can also get into what Frank calls a 'positional arms race', in which we try to keep up with those wealthier or more powerful than we are, even if we have to work too hard, save too little, and spend too much to do so. Some may pass that off as vanity, but it also seems to arise from the needs for affection and participation that Max-Neef has identified. 'Success has many fathers,' as the saying goes, 'and failure is an orphan', and so the appearance of success can be one of the surest ways of having friends (or at least people who seem like our friends), of being able to participate as a member of a group, and of having a sense of belonging and identity with something larger than ourselves.

Those three social needs – affection, participation, and identification – can sometimes drive design in dysfunctional directions. Frequently charged with not being able to stay within budgets, designers just as frequently face the dilemma of clients who want much more than their budgets allow and who find it hard to accept that they can't really afford the life they aspire to and that they have convinced themselves they deserve. The irony in this is that clients will often want much more than they physically need in order to satisfy social needs, such as the affection of a group who they identify with, that they feel they may lose without over-extending themselves. Sometimes, when designers are frank with clients about what the latter can actually afford, the project may go to another firm, and so many design professionals will remain quiet and try to meet clients' outsized expectations on pintsized budgets. With a lot of creativity, this can work, although when it doesn't and the bids come in too high or the project goes over budget during fabrication or construction, rarely does the blame get placed where it belongs: on the positional arms race that has so many people continually wanting more and more of what we don't need, in order to satisfy what they think they need elsewhere in their lives.

In another twist on this irony, designers can also fall prey to this positional arms race. It is an old saying that designers, when it comes to their own lives, have 'champagne tastes and beer budgets', often aspiring just as much as our clients for objects or surroundings that outpace our ability to pay for them.

For designers, this conflict is less often quantitative than qualitative, less about having the most and more about having the best of what money can buy, or rather what it could buy if we had the money to buy it. This is not so much a matter of designers trying to keep up with their clients as it is about keeping up with each other, since within professions as well as within other kinds of communities there remains the need for the admiration of peers and the sense of belonging to a group. Kant would ask of this, though: Is such behaviour something we could make universal, something that we (or the planet) can sustain if everyone acted this way? The answer is almost certainly no.

Consider countries like China and India, which aspire to have standards of living equivalent to more developed nations, out of the same desire to have a new identity, to be admired by other countries, and to participate at a new level on the world stage. Such enormous countries have already begun to consume resources at a level that, in combination with North America and Europe, that we all know the planet cannot sustain. But what right do developed countries have in telling a China or India that they cannot aspire to what we already have? Our duty, which the US government, at least, has not wanted to acknowledge, is that the most developed nations have to lead in the effort to reduce the consumption of resources before we can hope to convince other nations to do so. In recent years, especially, countries like the USA have acted as if we have some exceptional status that lets us ignore the clear duty that we have in the world, and whatever ethical problems this creates, it also makes it harder for us to adapt to the very real limits we will all soon face when vital resources like oil and water become scarce, and harder to respond to catastrophic events for which we have lost most of our resilience, such as a devastated New Orleans after Hurricane Katrina in 2005.

In the wake of such events, human needs remain, but the satisfiers have to change based on what is possible and available. This is where other, more personal needs will come into play: the need for understanding, for leisure, and for creation, for example. Our understanding of how we got to this place, and what our options are once confronted by demographic or climate changes we have set in motion and that are largely beyond our control, will be one of the greatest needs we'll have, for only then will we be able to have some perspective on how silly our positional arms race has been. We will need to unhook the satisfaction of our physical needs from that of our social needs, and realize the personal benefits of doing so.

One silver lining of the dark cloud of resource restrictions is that we may not feel so driven to work as long as many of us do now. Hunter-gatherer societies, for instance, understood and accepted, out of necessity, their material constraints, and in general, such social groups held leisure in higher value that we do now. Not that modern society doesn't value leisure, but the price we place on it has more to do with its scarcity than of its presence in our lives. We may dream about someday having the leisure to do what we want, once we get all the work done, which never seems to end, and which indeed seems only to increase as the pace of work and the demand for productivity increases. Connectedness and efficiency, once the goals of organizations, have become a characteristic of private life, with homes full of electronic devices and labour-saving machinery. The paradox of this, as many have noted, is that while any one of these devices or machines can save us time, in total, they have the result of encouraging us to do more, own more, and maintain more, which means that we end up having less time. Leisure, true leisure, may be one of the largest unmet needs we have, even as we are bombarded by products and services promising to give us more of it, while in fact giving us less.

Here, too, design gets roped into the fantasies that the larger society has about this unfulfilled need. The design media, for example, likes to show the interiors of houses or the landscapes around buildings in sunlight, with few if any people in the photos. Some in the design community chide the press and photographers for depicting the interiors of buildings without people, and see this as an indication of the media's disregard for the habitability and functionality of these spaces. Photographers often respond that it is hard to have people stand still for the long exposures they must take, but there may be other, more subliminal reasons for this curious omission. The uninhabited spaces seem to draw the viewer into a world in which nothing is happening, in which one can just be, to sit and look out the window or around the room. What these photos satisfy is both the obvious desire to see what these designed environments look like and the less-obvious desire many viewers, including many designers, may have to be in them and to do nothing at all. Architectural photography provides a kind voyeuristic pleasure, imagining the leisure that we might have were we to inhabit such spaces, something that designers, with our computer-driven, conflict-ridden work lives, seem especially to enjoy.

A third need, in addition to understanding and leisure, that a more materially reduced future might satisfy, is the creative need most people have. For many people, creation has become a matter of consuming the work of others, of

watching movies, viewing art, reading books, or listening to music. The size of the industries surrounding these creative activities demonstrate the size of the need they fulfill, but our consumer culture continually reinforces the idea that only a very few can be creative – at least successfully so – and that most of us must remain in the position of spectators, there to enjoy the fruits of others' creativity, but believing that we can create none of it ourselves. This makes so much passively consumed creative activity a type of 'inhibiting' satisfier, appearing to satisfy a need while actually inhibiting us from satisfying it ourselves.

This is partly the result of how creators talk about what they do. In design education, for example, there has long been a kind of mystique associated with great designers, who get portrayed in the media as larger-than-life and who rarely talk clearly or in much detail about the development of their ideas. This echoes the larger cultural norms related to the creation of art, which seems mysterious and almost entirely about inspiration, rather than the 80 per cent or more of it that, in fact, involves a lot of hard work, a lot of perspiration. The same mystique surrounds the products of creativity. We go to museums or concerts or theatre to marvel at greatness with the same sense of awe that used to be reserved for churches or temples, something quite at odds with the apparent nonchalance or feigned boredom that permeates other aspects of popular culture.

Satisfying the need for creation, says Max-Neef, involves characteristics such as imagination, boldness, inventiveness, and curiosity – all traits that every person has to varying degrees if we decide to develop them. From that perspective, what matters isn't so much the quality of the final product of creative activity, but the process of it, the way in which it extends and deepens those aspects of our character that enable us to see the world not as it is, but as it once was or could be or maybe even couldn't be. Kant's ethics of good will apply here as well. Creative activity involves good intentions, the will to make something or see something anew, even if the consequences of this work doesn't meet what others view as good work. An irony here is how many artists have sought to break down the boundaries of good taste, taking art to the streets, envisioning the world as a child might see it, or being as shocking or as provocative as possible. While the rebelliousness of modern art seems to generate even more awe among the masses, we might also see it as just the opposite, as a form of empowering non-artists to be just as bold, just as open and curious, and just as inventive and imaginative, each in our own way.

The final item on Max-Neef's list of needs is that of freedom, one of the most often misunderstood need of all. The psychologist Victor Frankl, who spent time in a World War II concentration camp, realized that, while the German guards had 'liberty', he had his 'freedom', since they could not determine what he felt and thought[8]. We often use liberty and freedom interchangeably, but they are fundamentally different: liberty is a social condition affecting our actions and relating to our politics, while freedom is a personal matter, reflecting our mind and heart and unaffected by the external limits on our lives. Because we sometimes confuse the two, we also tend to want the two conditions to be consistent: for us to have as much liberty of action as we have freedom of thought and emotion, which has fuelled our incredible investments in technology to maximize our physical mobility. Frankl's real lesson, though, is not just a stoic acceptance of situations over which we have no control, but a life-enhancing message that, however constrained we might be by social custom or material conditions, we are always free as human beings and always able to think and feel as we choose.

This, in turn, suggests a different way of understanding the historian Isaiah Berlin's distinction between negative and positive freedom[9]. Berlin wrote in the wake of Nazi aggression and Soviet repression, and he remained highly critical of the 'positive' freedom of allegiance to the state that both the Nazis and Soviets used to justify their actions. Instead, Berlin saw 'negative' freedom – freedom from constraint – as preferable, although Frankl's distinction suggests that negative freedom means two very different things if it is freedom from external or internal constraints. Frankl reminds us that we may never be totally free from external, social constraints, but that we are never really hampered by internal, intellectual or emotional constraints unless we impose them on ourselves. At the same time, it makes a huge difference if others impose positive freedom – the choice to embrace something – on us or if we impose it on ourselves, according to our own ground rules and within self-imposed constraints. Frankl's life suggests that we always have freedom, even if we don't have liberty.

Frankl's notion of internal freedom, however, does not give us much guidance in how to shape our external circumstances or physical surroundings. For that, we might turn to what the historian James Block calls 'agency', which he describes as the free choice of people to serve a larger vision and the willingness of people to work on a collective project[11]. He uses, as an example, a person who freely chooses to join a church or temple and to become devoted to its mission or vision. The same might be said of those who join volunteer

groups, communities, and so on. Block's idea of agency gives 'positive' freedom a more positive meaning, one based on voluntary allegiance. While Berlin argued that positive freedom lends itself to dictators imposing their will on people for a cause, Block suggests that that isn't freedom at all, that positive freedom can only be called such if people freely chose a collective action and can equally freely chose not to act in this way. We need freedom, as Max-Neef would argue, but it also matters how we achieve it and where it resides.

That is where many of the pseudo-satisfiers of our yearning for freedom come into play. So much of the environmental and social damage generated over the last century has come from a misguided notion that freedom means liberation from external, material constraints. Whether it be the fast car on the open road or the large house on its own piece of land or the portable communication device that slips into our pocket, we have, collectively, made enormous investments in technology and environments that appear to liberate us, even though their direct cost to us as well as their indirect cost to our communities and common landscape are anything but liberating. What we learn from Frankl, Berlin, and Block is that true freedom is an internal state, attainable almost regardless of our external circumstances that we can freely chose or decide against without repercussions. The designed environment would differ from what it is now with such an idea. Rather than provide a seemingly endless supply of pseudo-satisfiers that rapidly come and go in our lives, the designed environment would change more slowly, encourage more community, and remain more open to the voluntary efforts of freely choosing individuals and groups.

Liberty without some sense of belonging to a larger vision is one of the tragedies of modern individualism as well as modern design. We can have all the material possessions and physical mobility we want, but with no collective sense of its meaning, no bigger idea that makes all of our individual acts build towards something larger than ourselves, it becomes empty. In that sense, our constant pursuit of negative freedom, of freedom from constraint, becomes its own trap, its own internal dictatorship. Artists and designers, rewarded for idiosyncratic and highly individual vision, epitomize that potential emptiness. The more personal, subjective, and sublime our work, the more it seems like a pseudo-satisfier, something we may admire, but nothing that we can be a part of or help give shape to. Indeed, one of the striking things about some of the most admired design work today is how little it meets – or seems to care to meet – basic needs, defying understanding, resisting affection, rebuffing participation, and challenging identity. About the only needs it speaks to are

creation and freedom, although primarily that of the creator and maybe only indirectly that of the user or inhabitant.

Art and design, though, also signal change, and it may be that we will know we have begun to achieve a more sustainable future for ourselves when we begin to see creative work once again focused on the real as opposed to the pseudo satisfaction or inhibiting of needs. The more such work becomes meaningful – according to how much we care about the subsistence and protection, the affection and participation, and the understanding and identity not just of the people directly affected by it, but by all who may experience it in some way – the more we will have begun to achieve what has eluded us for over a hundred years: the duty of those in a position to lead in our culture to take that responsibility seriously and to act on behalf of, and for the good of, others rather than in pursuit of some highly personal and perversely negative form of freedom that they can't sustain in their personal lives any more than the rest of us can globally.

PLACES

Corporations

Loss is nothing else but change, and change is Nature's delight.
— Marcus Aurelius

I was once laid off from a job in a large publishing company, which seemed healthy from the outside, but it was anything but that when viewed from within. The company had many publications that had languished for some time, and in need of cash, it decided to sell our publication, one of its healthiest, to a competitor, who promptly closed us down. It was my introduction to the underside of the corporate world, one in which loyalty to employees may last only as long as the next quarterly report to the

shareholders. In this light, the large and apparently solid headquarter buildings of such companies seem more like a ruse, conveying a sense of invincibility that serves to cover the financial and personal insecurities that often exist within such organizations.

It would seem that being large in size and global in reach would make such companies more resistant to failure than small, local ones. The large ones, after all, have more clout they can exert and more resources they can draw from, as well as successful units they can throw like a bone to a competitor for some quick cash. But it may be, in the rapid and often unpredictable change that has come to characterize the global economy, that large size is a definite disadvantage, as it often is in the natural world. While comprising a single, global ecosystem, the earth is really a vast collection of small ecosystems that can have a great deal of internal diversity and resiliency. In periods of dramatic change, such micro-ecologies can have a better chance of survival than large, integrated ones, which have, like the large, integrated corporation, more to lose and farther to fall.

Marcus Aurelius knew this. When he wrote that nature delights in change and loss, he did so in a period of growing threats to the Roman Empire he presided over. It went from one of the largest and most powerful empires up to that point in human history, to a shadow of its former self in a series of shocks and setbacks. Historians have offered many internal and external reasons for Rome's debacle, but as Thomas Homer-Dixon has recounted, Rome may have fallen, in part, because it had reached the limits of its environmental footprint, unable to keep feeding the empire with the resources it needed to thrive[11]. The very efficiency and connectedness of Rome so reduced its resilience, argues Homer-Dixon, that it could not sustain itself, despite its massive military.

But as Aurelius wrote, it may not be loss, but the denial of loss that is the problem. I saw that in the corporation I worked in. As the world had begun to change, moving away from print publications to a multitude of information sources, the losses began to mount along with the denial of it until, one day, the pink slips started to appear. If nature delights in loss, then maybe we need to learn to do so as well, anticipating it in the design of our corporations as designers have begun to do in corporate headquarters. Some office buildings, for example, have begun to expect losses, providing operable windows so that the building can function without air-conditioning, a lot of daylight in case the power goes off, and multiple escape routes should a catastrophic event occur.

At the same time, many corporate headquarters have become a collection of more independent and self-sufficient parts.

The same might well serve the design of the corporation itself. Breaking it down in relatively small and semi-autonomous units, planning for the unimaginable, envisioning the unthinkable, and preparing for the absolute worst case can be the way in which such organizations might thrive best in an increasingly chaotic world. Emergency management may become the only form of management possible in the future. No one likes to dwell on such things, to plan for collapse or catastrophe, but by doing so, organizations may also avoid having to do what one did to me and my colleagues on that day we were all laid off.

Office

Be silent as to services you have rendered, but speak of favors you have received.

— Seneca

I write this from my laptop in my living room, which at this moment, has become my office. I have an official office – actually two offices – that I use on occasion, and that I keep clear of most personal effects so that both can be used by others as meeting spaces when I'm gone. But my real office is this laptop in front of me, and wherever I can find a comfortable chair, an internet connection, and cell phone service. Is this what we mean by the service economy, to which most of you reading these words probably belong in some way? Who is served in such an economy, and how best to do so? It used to be that if we needed service in something, we had to go to an office or store to get it, but now, as the educator William Mitchell has argued, many of us live in a kind of 'E-topia' in which electronic commerce allows us to get much of the

information we need online, and shop for almost everything we need from a computer, with the delivery of goods right to our door[12].

This electronic dispersion of the office and of service has come very quickly, and it has yet to make much of an impact on the many office buildings still being constructed these days. Plenty of people still commute to work, waiting in traffic, in order to sit for many hours in inoffensive offices or inconsiderate cubicles, before repeating their steps home, only to repeat the process the next day. But if we were to imagine what kind of environment would enable people to do their best, most creative, most inspired work, I doubt most of the offices people now occupy would be what we would come up with. Risk-taking does not do well in the completely risk-averse settings that most offices have become.

So what will we do, in the future, with all of the office buildings we have constructed over the last many decades? I once thought that we should make them homeless shelters at night, since most of them are empty, guarded, lit, and serviced, and some of them are cleaned by workers whose meagre income makes them almost homeless themselves, but that idea did not go down well with the building owners I suggested it to. During the day, though, office buildings could become a container of much greater diversity than they often do now. Like the mixing of condominiums and hotels, offices could have housing units on some floors, recreation space on others, and tax-deductible community space on still others. Meanwhile, some office buildings might go 'on-ice', waiting for a time when a growing population surpasses a declining demand and we will once again need what office space we have.

Meanwhile, people will continue to find office space almost everywhere they look. I often meet colleagues in coffee shops, do business over a meal, and watch students doing school work wherever there is a place to sit or recline. The city and the campus is now the office, silently rendering a service, as Seneca said, that they were not designed for, but that they serve well. I see this as a favour, something worth speaking of, as Seneca also advised, although not everyone sees it as such. I once wrote an article suggesting that faculty should embrace the flexibility of telecommuting and mobile offices, which companies had increasingly made available to their staff and colleges to their students[13]. The angry reaction I got from some faculty, accusing me of imposing a cost-saving corporate mentality on the academy, made me realize that the future of the office will probably be much more diverse than we can imagine now. For some, not going to the office will be a favour; for others, it will mean having an office to go to. For every person online, there may always be someone off-line and just fine with being in an office.

Store

It is impossible to live a pleasant life without living wisely and honourably and justly.

— Epicurus

A great grandmother of mine died of consumption, what we now call tuberculosis. Everyone used to fear consumption, but that word has now come to mean much the opposite, a sought-after activity of purchasing and using goods, services, and resources. Our consumer economy likes such consumption and encourages us to keep it up even beyond our means to pay for it. And now that people the world over aspire to similar levels of consumption, the time has come for us to ask what we are doing here.

In all of this, the old meaning of the word consumption has become newly relevant. As we roam, like modern-day hunters and gathers, amidst the enticing goods in our glittering shopping malls, the fantastic abundance that surrounds us also represents a fatal wasting away of mother earth, as we use up millions of years of the planet's accumulated resources, in the

form of fossil fuels and fresh water aquifers in a few generations. Like the consumption of patients of centuries past, who appeared well even as they slowly suffocated from the swelling tubercles in their lungs, the world seems healthy enough at a cursory glance. But our landfills have begun to swell shut, our air has begun to be suffocating, and other species have begun to waste away in record numbers. We do, indeed, live in a consumption economy, and its slowly killing us.

Epicurus observed that the pleasant life, the materially comfortable life that our consumer culture dangles out before us, depends upon our living 'wisely and honourably and justly'. Such virtues rarely come up the advertising of goods or the promotion of services. We do have health-warning labels on cigarette packages and cautions not to drink and drive in alcohol advertisements, but those have arisen largely as a result of consumer-protection regulations. That might change, though, were we to pursue the pleasant life with those virtues in mind. What would it mean to consume wisely, honourably, and justly? What might a store be, where might it be, and what might it contain as a result?

It might mean consuming in ways that does as little harm as possible, something that we should do out of a sense of honour or respect for each other as well as out of a sense of justice for those who we don't know: other generations, other species, other cultures. This might, in turn, prompt us to want most of what we need within walking distance, in shops stocked with locally produced and extremely durable or easily recycled goods. In our current form of consumption, such a scenario sounds nostalgic, since so many of us now drive to large national chain stores, full of goods made in and shipped from all over the world in order that we have a lot of choice at low prices. While hard to argue against, that system has come at an extremely high price to the planet, however, and as a result, to ourselves and our progeny, who will have very little choice after we have consumed so much of the earth's finite resources.

It's our right to consume things if we can afford them, some say: all part of living in a free country with a free-market economy. But think what those who follow us, our children and grandchildren and their grandchildren, will think of us years from now: cursing us for using up so much of the earth in so short a period of time. Even if you believe that future generations will find new ways of meeting their needs, there is no question that they will have much less of

the accumulated wealth of the planet's diverse species and mineral resources than we inherited. So, however comfortably we now live, we have not lived wisely, honourably, or justly towards future generations, and facing that uncomfortable fact is the first step in leading a pleasant life and the beginning of a cure for our consumption.

Factory

Adversity has the effect of eliciting talents, which in prosperous circumstances would have lain dormant.

— Horace

After college, I did a study for the Federal government on the early-twentieth-century automobile industry in Cleveland, documenting the mostly abandoned factories that once made steam and electric cars, as well as fuel-powered ones. With everyone from the boss to the machinist working in close quarters, often in wonderfully spare, day-lit buildings, these early auto companies showed how much, as the poet Horace put it, adversity can elicit talent. With little money and mostly hope, those car makers developed vehicles and production methods of great inventiveness, from which we still have much to learn. As I would walk through the ruins of what they left behind, I used to wonder what circumstances make adversity a good thing as opposed to something we hope to avoid?

The factories themselves helped answer the question, although not in a way I expected. Building codes, workplace standards, and environmental regulations have all served to make modern factories safer than they were a hundred years ago, minimizing the potentially adverse effects of hazardous work. We expect protection, in our homes and neighbourhoods as well as in our workplaces, from physical harm, knowing that none of us can thrive if we face unpredictable bodily threats. That extends to monetary threats as well. The social safety net that helps catch people out of work serves to protect people from severe penury so that we can all lead safer and more productive lives.

This seems obvious, although many confuse these issues. On the one hand, we hear those on the political left wanting to do almost everything possible to protect people out of a well-intentioned goal of minimizing adversity. On the other hand, we hear the political right arguing that the state can, and often has, gone too far in protecting people from adversity. Both sides have a point, but often fail to make a distinction between good and bad adversity. The left is correct in wanting to protect people from physical harm, especially that over which people have little or no control, and the right is correct in not overly protecting people against all risk, particularly risk that can, as Horace notes, bring out talents that might lie dormant otherwise.

So the real distinction to make is between adversity we have no control over and that which we do. To be harmed by unhealthy or unsafe environments or to have our most basic needs of food, shelter, and clothing go unmet, does not put anyone in a position of thinking about a larger good. There is a minimum standard needed to lead a life, and we have been too ready to let some people in our own country and certainly elsewhere in the world slip below it. But intellectual, moral, or spiritual adversity – challenges to our mind, heart, or soul – all have great power to tap our creativity and elicit our talents, as I witnessed among those who started those early car companies.

The architectural parallel here lies in the distinction we often make between function and inspiration. A building has to meet our basic needs for shelter, security, and health, and the more potentially hazardous the activities engaged in within, the more critical it becomes in meeting those needs. But all too often, we construct workplaces with the most barebones utility, providing very little in the way of inspiration or even daylight or comfort. That comes from the mistaken idea that some people do the decision making, with others simply implementing the decisions.

In fact, creativity and talent lies in everyone, and everyone has the capacity to apply them to what they do if given the chance and the recognition for doing so. The division between the front and back office, between the headquarters and the factory, the white collar and the blue collar, misunderstands that reality. Instead of seeing one setting as a place of mental adversity and the other a place of physical adversity, one place for thinking and the other for making, we should see all places of work as needing to meet all of our basic needs and that exceed our wildest imagination, for in doing the latter – in challenging our assumptions and encouraging our creativity – we can create the good adversity Horace urged upon us all.

PRINCIPLES

Instead of creating objects to possess, build community

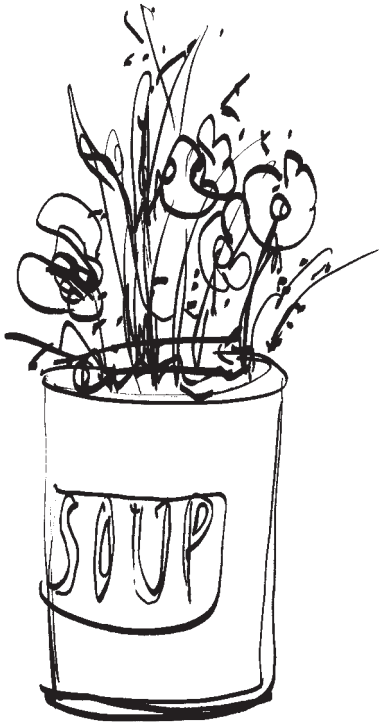
One of the curious qualities of design practice is that it creates objects and environments out of a community process. That process can sometimes involve an outside community – a neighbourhood group, an organization, a family – but it always involves the internal community of a design office as well as the extended community of consultants, fabricators, contractors, and code officials, among others. Designers build things, but in so doing, we build community as well.

This runs counter to the public perception of the designer as a lone genius, an image that might apply to many in the fine arts, but that definitely does not fit design. However much the media likes to focus attention on single individuals, every designer knows that the work would never get done without the help and input of many other people, who often remain unknown and sometimes, unfortunately, unacknowledged. Also, while design demands a high degree of creativity, the ability to see something that doesn't yet exist, it also requires good communication skills and the ability to cooperate with a wide range of other people: traits that truly make the difference between successful designers and those with little work and a lot of litigation.

Given the communitarian nature of the design process, I wonder if those qualities could also infuse the final results of what designers do? Could designed objects and environments become less about our possession of them and more about our sharing them, interacting with them, and building our own communities through them? There are many ways this already happens: when neighbours share a designed object like a lawnmower or ladder, when colleagues interact around a table or in a golf game, or when volunteers participate in constructing a Habitat for Humanity house. But could the designed environment encourage much more of this through the way we design things?

Could we purposefully design things to be incomplete or multi-use, so that people can personalize, interpret, or manipulate them in a number of different ways, using the 'Gobot' toy as a model for many things? Could we intentionally design products and environments so that they require cooperation and sharing to be functional, using 'knock-down furniture' or 'do-it-yourself construction' as examples? And could we design systems so that the community formed in the design and making of something extends into the ownership, reuse, and recycling of it, using the model of companies leasing their products and taking them back for reconditioning after a period of time? Such problems await the design community's creativity.

Instead of specialized things that can only have one use, make them multi-functional



Look at how children play. As I remember my own daughters doing when they were young, children can take a pot and a spoon and invent all sorts of games or imaginary situations with the simplest props, as opposed to the specialized games and seemingly realistic toys that line the shelves of toy stores. The latter may be what adults think children want, but the toys that adults also design are more a reflection of the grown-up world, one that often has much less imagination than that of children. It is parents who like specialized playthings; most kids just want some pots and pans.

This is an issue that goes beyond toy design. We have gone through a century in which every thing and every person has become ever more specialized, with the idea that it will enhance efficiency and increase productivity. But it is based on the same mistaken notion that parents have with their children's activities. People may be more efficient in a highly specialized setting, as children will

be with a highly proscribed game, but this is not how to harness our creativity or open ourselves up to new ideas and innovations. The narrower we and everything around us becomes, the less likely are we to imagine the new things, the untapped possibilities all around us, that have become increasingly important in a global setting in which change – climate change as well as corporate change – has begun to occur at an ever faster pace.

Highly specialized organisms, like their organizational equivalents, often can't adapt to change fast enough and so tend to die, while the more multi-functional they are, the better chance they have of surviving. A useful rule of thumb here is to design everything able to serve at least two different and important roles within the whole. This does not imply complete flexibility, for as we have seen with designs that promise almost universal adaptability, they rarely serve any purpose particularly well. Instead, real flexibility arises out of every part having more than one speciality, leading to designs that accommodate particular needs while also adapting to unanticipated one. This is a task not just for designers. Like children playing with pots, every one of us has the potential to contribute creative ideas that might be exactly what we have all been looking for. So, let's take off our adult blinkers, put aside our parental bias, and imagine a new function for everything and every one, including ourselves.

Chapter 7

The consequences of ignoring consequences

When I worked as an architectural journalist, I sometimes heard the clients, particularly of public buildings, mention that the architects had never returned after completion to ask what had worked well or not so well. In one case, a public librarian expressed considerable anger at this, not because she was unhappy with her new library, but because she felt the architects didn't care about the happiness of the people using it. When I mentioned that conversation to the architects, they seemed concerned – and a little angry at

me for being the messenger – and I suspect they called their client soon after I left, and paid a visit to the building afterwards. Architects are busy people, but the regularity with which I heard this from clients reinforces a relative weakness in much of the design community, which has generally focused on creating new things rather than on revisiting and evaluating old ones. This reflects a characteristic of most design schools, in which the reviews of student work often focus on the student's intentions and their success in realizing them, with relatively little time spent analysing what worked and didn't work in projects from the past.

Having come through an era of rapid turnover of ownership and tenancy, in which the average length of homeownership is under seven years and the average office lease term is five years, the rapidity of changes to older projects may have worked against the design community's assessing its previous efforts, although that it is still no excuse for not staying in touch with clients or not learning from past mistakes in order to improve future efforts. One of the differentiating factors among professions is the rate of repeat business, and designers, according to the sociologist Robert Gutman, spend a relatively greater amount of their time seeking new clients than other fields like law[1]. Likewise, fields that have learned from past errors in a systematic way, such as medicine, have had greater chances of success than those that work more by the accumulated knowledge of one person's experience, as often happens in design.

So, caring about the results of what we do matters, especially as we enter an era in which we cannot afford to waste materials, energy, or effort as perhaps we thought we could in the past. And providing for the most number of people will become increasingly important when there is less to go around. Those two key concepts in utilitarian ethics – attending to consequences and seeking the greatest good for the greatest number – give us useful tools in determining how to distribute and use limited resources more wisely. The philosopher Jeremy Bentham tried to quantify this with his utilitarian calculus, in which he tried to prove that the right thing to do in any situation is that which produces the greatest happiness or least amount of pain for the greatest number[2]. Few human activities, however, can be measured so precisely or the consequences of actions predicted so clearly that we can actually calculate them, and so utilitarian ethics has tended to divide between those who focus on the likely results of particular actions and those who focus on the assumed consequences of more general rules.

For designers, that divide exists in the tension between practitioners and regulators, between those who seek the best route to take in a particular project and those who write codes and administer regulations with the goal of reducing hazards and protecting the greatest number of people. Both approaches have their value, although both also have potential weaknesses. What might seem likely to produce the best results in a given situation may end up having severe negative consequences for others outside a project's boundaries, as sometimes occurs with developments that fit within what zoning allows, but that have unintended negative effects on traffic congestion, air pollution, and public services. At the same time, rules that have overall good consequences can also have very negative ones in specific instances, as I once experienced when government regulators demanded the preservation of particular details in a historic building that made it impractical to rehabilitate, leading to its abandonment and eventual demolition.

It hardly seems like the greatest good when the results of what we do can lead to environmental pollution or unnecessary demolition. In general, utilitarianism works best when it is flexible enough to adjust rules to extenuating circumstances and broad enough to take into account more than just the narrow interests of a few people. Peter Singer, for example, has argued that utilitarians need to consider the effects of actions on animals as well as humans, since animals, too, can feel pleasure and pain. His 'preference' utilitarianism acknowledges that the right action in a given situation depends upon the preferences of those involved, rather than according to some absolute measure of the good[3]. What sets Singer apart is his insistence that we include the animal world, and by implication the larger natural world, in our assessment of preferences, something that has become essential as the collapse of critical ecosystems becomes an ever greater possibility in coming decades.

Singer's 'one world' assessment of human actions points to one of the reasons why we have created so much environmental damage in such a seemingly short period of time. As we saw with Adam Smith and his dislike of things with 'frivolous utility', the business community has long practised a form of utilitarianism, seeking out the greatest good in terms of the largest markets for the greatest number of potential customers or clients at the lowest cost, in order to return the highest profit. What we inherited from Smith's eighteenth-century perspective, though, was the belief that natural world is somehow an infinite resource, able to absorb all that we can take

or throw at it. By narrowing their focus to just the good of their customers and their owners or stockholders, businesses and industry have generated hugely negative consequences to all who lie outside their area of focus, be it other species, future generations, or nations and people beyond the reach of our regulations. The problem lies not with utilitarian thinking per se, but the overly myopic application of it, to the point where we all have begun to suffer. Likewise, the solution will lie not in rejecting utility, for it remains an effective way of judging the best course of action, but taking into account many more factors in assessing the greatest good, and many more beings in determining the greatest number.

As we all face constraints on the assumption of unending growth at the core of capitalism, we also need to acknowledge the distinction that the philosopher Alasdair MacIntyre makes between 'internal' and 'external' goods[4]. External goods, he writes in *After Virtue*, 'are always some individual's property and possession. Moreover, characteristically they are such that the more someone has of them, the less there is for other people.' Internal goods, in contrast, 'are indeed the outcome of competition to excel, but it is characteristic of them that their achievement is a good for the whole community who participate in the practice'. Utilitarian ethics, he continues, is 'formed entirely in terms of external relationships and external goods ... [and] cannot accommodate the distinction between goods internal to and goods external to practice'. That criticism may be true of utilitarianism in the past, but it is not necessarily true of all assessments of actions according to their consequences. We can envision a world in which the greatest good for the greatest number involves a focus on 'internal' goods like education, contemplation, and creativity, rather than on the 'external' goods of products and services. Such 'internal' goods have the benefit of accommodating almost infinite growth, since there is no end to what we can know, think, or imagine, and little or no negative impact on the natural environment or on other species.

This has already begun to happen with the rise of a knowledge economy, in which information and ideas get shared virtually around the globe through electronic channels, with very little movement of physical things. We also see it with the emergence of the so-called 'experience economy', in which people seek to absorb the lessons of places or events without possessing them, while viewing work as a form of theatre and the physical world as a kind of stage[5]. Design, be it in the design of computer interfaces or in the design of

places worth experiencing, has participated in the expansion of this 'internal' goods economy, but this suggests a very different way of practising for many designers in the future. Architect William Hubbard suggests that the design professions, while always dealing in some way with the physical world and thus 'external' goods, can also model in our practices the kind of 'internal' good that MacIntyre writes about[6]. For example, every designer could put much more emphasis on competing with one's self in the pursuit of excellence or perfection, which is not only an infinite good available to all, but also an effective way of competing with others. Designers could, as many do now, also emphasize the pursuit of excellence in everything we do and design objects and environments that would encourage others to do the same in their own lives. The focus on quality is already strong in the work of most designers, but our fees are still often tied to the quantity of what we do, and this is where the change in practice needs to occur. In an 'internal' goods economy, the effects of a product or project on people's understanding or inner growth will matter much more than its quantity or size, and the consequences of this may be that the best design is that which is the most thought-provoking and experientially rich, as well as being the least physically intrusive or environmentally destructive.

Those last caveats are important, for they have generally not factored into our thinking about excellence any more than they have into our assessment of utility. We can see the origins of this as far back as Aristotle, whose idea of excellence or 'arête' as the Greeks called it, was central in his teaching of Alexander, the general who led the Greek army all the way to India[7]. While Aristotle saw arête as an internal good, Alexander applied it to his army's domination of the physical world, creating an efficient fighting force that eliminated almost every enemy in their wake and that did a lot of damage in the process. Alexander took the idea of arête as a tool to use in acquiring external goods, a tradition that the Western world has continued to this day, often using education and research as the basis for creating technologies aimed at controlling other people, the natural environment, and the material world generally. This instrumentality may arise from the best intentions; as every designer knows, our reshaping and giving order to the physical world almost always comes out of a desire for improvement. But as Aristotle argued, our own internal arête does not have to leave a permanent imprint on the external world. Indeed, there may be an inverse relationship between the two: the more we focus on external perfection, on controlling the material world and shaping it into our vision of excellence, the less we focus on our

internal life, on perfecting the mind and the heart. Helping people develop and maintain a rich inner life may be the great-unexplored new territory for the business world as well as for design. That, in turn, may mean that we all eventually come to the point where we accept the natural world as it is, there for us to understand and learn from rather than control and use.

Biomimicry, which uses the principles found in nature as the basis for human-based design, represents a major step in this direction, showing how we can learn from rather than simply take from the natural world[8]. This approach to design has developed new materials and products with great promise, although it needs to expand across the entire culture, for there is much that we have yet to learn from other species far more sophisticated than we are in terms of co-existing on this planet with many other organisms. Business might learn from other species, for example, how to fuel itself entirely on the free energy of the sun, how to make things that completely biodegrade to become food for other organisms, and how to recycle all of the waste from every manufacturing process so that we leave no trace of ourselves behind. Almost every other animal species has figured out how to do this, and we should be smart enough to do the same. Designers also have much to learn from nature. We might learn from termites in developing housing that is much more multi-functional, compact, easily heated, and naturally cooled. And we might learn from birds and beavers to figure out how to fabricate and construct things with what is immediately at hand and readily available, greatly reducing the cost as well as the environmental impact of what we create. This does not mean that we should live like termites or beavers, but rather that we can learn from them to make things in ways far more efficient and less wasteful and damaging than we do now.

There have been many attempts at this over the past several decades, from Le Corbusier's Stuttgart houses, with their single multi-functional rooms accommodating every need, to Malcolm Wells' earth-sheltered buildings, with their natural insulation and cooling, to Shigeru Ban's recycled structures, with enclosures made of recycled shipping containers or paper tubes, to Herzog and DeMeuron's Dominus Winery, with its rock-gabion exterior walls providing habitation for other species, from birds to snakes to rodents. In all of these cases, design has shown how we can learn not just specific techniques from other species, but also general principles of how to live more sustainably with them. Humans might even go from being the greatest threat to almost every other species on the planet to their greatest partner, once we let ourselves imagine the possibilities.

The charge often levelled against such possibilities is that they are not pragmatic, that they cost too much or are not reliable, and so it is worth taking a moment to consider just what we mean by pragmatism, a version of utilitarian ethics. Pragmatism began as a theory of meaning: 'The meaning of something', said the philosopher Charles Sanders Peirce, 'was all of its possible consequences.'[9] As such, pragmatists remained sceptical of all metaphysical or empty analytical ideas, and argued, instead, that the only real things are those that have real consequences. Unlike other forms of ethics that tried to find some universally agreed-upon idea of the good, pragmatism recognizes that meaning and action have to adjust continually to changing contexts and the consensus of a particular community at a particular point in time, and that philosophy's value lies mainly in its success in helping people understand and deal with their daily realities.

But pragmatism also lent itself to being reduced to a simple formula, a new kind of utilitarian calculus in which the right thing to do is that which is most cost-effective, most expedient, or most profitable. Because of that, design might appear to appeal to pragmatists. After all, design is often considered the most pragmatic of the arts, a creative activity that results in things and environments that we use on a daily basis. But designers also regularly encounter clients who, in the name of pragmatism, devalue what design has to offer by dismissing any new ideas and refusing to consider anything that hasn't already been long proven to work. At the same time, pragmatism leads some clients to want the lowest possible first costs, often for the lowest possible fees. Pragmatist philosophers might rightly argue that this philistine form of pragmatism is nothing but a misguided understanding of what the ethics means, since it often doesn't take into account all of the possible consequences of something, and doesn't want to take the time even to find out what those consequences might be. But this, nevertheless, remains a popular interpretation of pragmatism and one that arose over time, in parallel to that of modern design.

In the USA, the first formulator of pragmatism was Peirce, who drew from utilitarianism, but adopted it to an American sense of practicality, focused on results. An architectural equivalent and roughly the peer of Peirce was H.H. Richardson, whose vigorous, rock-faced buildings drew from European Romanesque buildings, but adapted them to the sense of power and optimism of his nineteenth-century clients, many of whom had ties to commerce and industry. The pragmatism in Peirce's thought and of Richardson's buildings resulted in work that tried not to smooth over or cover up things – be it an

observation about ordinary life in Peirce's fragmented writing, or a relishing of a boulder in a wall in Richardson's rough-cut structures.

Brilliant interpreters of their work, extending it in new directions, followed both Peirce and Richardson. William James explained Peirce's pragmatism to a broader public, simplifying it and recognizing the role that our will plays in it. Since we can never know the full consequences of anything, there comes a point in every decision where we have trust our intuition, the 'will to believe' as James put it[10]. On the design side, Louis Sullivan became the heir to Richardson, adjusting the straightforwardness of the latter's work to modern needs, such as the skyscraper, and capturing Richardson's archaic sensibility in the Celtic-like iron ornamentation Sullivan liked to use in his work. Both James and Sullivan also produced works of great psychological and spiritual content, suggesting that pragmatism, in the end, is as much about inner growth as it is about manipulating the exterior world[11].

Two thinkers who popularized and socialized pragmatism followed them. John Dewey recognized that pragmatism was a social philosophy, something to use not just to judge the meaning of things, but to change the world and to build community around a shared sense of what is best for a group of people or in a given situation[12]. Likewise, Frank Lloyd Wright saw in Sullivan's ideas their social implications for the reformation of everything from domestic life, with his Usonian houses, to urban planning, with his Broadacre City[13]. Both Dewey and Wright tied pragmatism to social vision and democratic action, coming up with new forms – new educational forms in the case of Dewey and new architectural forms in the case of Wright – that had a tremendous impact.

The more philistine interpretations of pragmatism arose largely after Dewey and Wright had passed. This American form of utilitarianism had, by then, becomes swamped by European formalism, be it logic and language analysis of European philosophy or the abstract machine-like aesthetic of European modernism. With seemingly little interest in whether or not the public understood them, formalists became, despite their veneer of radicalism, the proponents of a highly conservative position because of the many political and social concerns that they would not deal with, at least in its North American incarnation. Cut off from the pragmatic tradition, in which the leading thinkers of the day cared enough to connect with ordinary people, the North American public also began to move in a more conservative and reactionary direction. The pragmatism that, for many was the last philosophy

and last modern architecture they understood, became a shadow of what it once was, and a tool to stop ideas in a way that seemed to care less, paradoxically, about consequences.

That, in turn, suggests a way in which we might move the more philistine interpretations of pragmatism back towards the inventive and imaginative version of it in the late nineteenth and first half of the twentieth century. At one level, the shadow of what pragmatism once was has served a good purpose, which has been to be sceptical about non-consequentialist thinking, about ideas that seem to exist in their own universe and have little or no relevance to the real problems ordinary people face. But at another level, this form of pragmatism has itself become insular and focused more on personal or private advantage rather than on community consensus and collective conversations. This is how the recently deceased philosopher, Richard Rorty, offers a way to revisit the tradition lying largely dormant since Dewey and Wright[14].

Rorty recognized the central importance of social solidarity in pragmatic thought, seeing philosophy as a kind of ongoing conversation about what a given community sees as valuable for it at a particular point in its history[15]. This, of course, disturbs those who dislike the idea of relativism, but Rorty argued that there are no eternal verities 'out there' to discover, but only those values that serve a purpose for us, which we can justify or warrant as a community. The words we use in public conversations and private deliberations are different, but equally important in arriving at what, pragmatically, has the greatest value for us. While Rorty rarely looked at design, his ideas have distinct relevance to the ways in which we construct our world and the ways in which we can deal with the more misguided forms of pragmatism we occasionally encounter.

Rorty encouraged us to listen carefully to the vocabularies people use, for, as Wittgenstein observed, many of the conflicts we confront arise from misunderstanding the language and the words we use[16]. But for Rorty, this has practical value, for what people say and what they mean may be quite different, reflecting the differences between the public and private vocabularies. Designers see this all the time. What a client might say in a public setting might differ from what they say in confidence, and the same is true for the public and private language of professionals. I have experienced the misunderstandings that arise when designers don't alter

their professional jargon in public settings, leading clients and communities to miss or misunderstand the message. Likewise, I – like many designers – have heard non-designers use a publicly recognized and accepted language when what they had in mind turns out to be something else. Spending the time to translate the possible meanings of what is being said by all parties in a project is time well spent, especially as the context and conditions within which we live are quickly changing.

As we translate, so too do we converse, and it is through conversation that what is most useful to us arises, says Rorty. When a client or community claims to want only what they know or have long done, it may not be that they are opposed to new ideas – after all, they seek something new in commissioning a professional to create it. Rather, it may be a way in which an existing consensus, which often defines the community, gets expressed to ensure that it be understood and not forgotten as new ideas evolve. This is the evolutionary way in which Rorty saw ethics develop, slowly, building on what existed while taking on new thoughts that serve a purpose or that help the group adjust to a new situation.

Design, in its own way, offers a very powerful form of this process. It begins with translating a client's or community's needs into a brief from which design ideas can grow, a step that is mostly about listening not just to what clients and users say, but what they don't say or say in coded ways. When Rorty saw the connections between pragmatism and deconstruction, it was partly with this in mind: that the vocabularies a community uses can hide or elide past the inner tensions in a group or individual, and the design process often exposes this, either in the initial conversations or later, in response to design alternatives. The other pragmatic aspect of design is its conversational, interactive nature, at least when done right. There are designers who, mainly for ideological reasons, will try to impose an idea without much collaboration, generating a form unrelated to the client's or community's social consensus and seemingly unconcerned about the idea's possibly negative consequences. They are also the designers who come into conflict most often with 'pragmatic' clients. However, the pragmatism encountered here is often not about the fear of new ideas, but rather of ideas that do not emerge from conversation and participation.

Rorty emulated John Dewey's talent of conveying philosophical ideas in a way that an educated public could understand and find useful in their

own lives, a social art that is also something that design does at its best. There are, of course, many designers – like many philosophers – who seem to care little about communicating with anyone other than their peers. The economist Robert Frank calls this an 'arms race of erudition', but it is hard to be sympathetic when the most erudite practitioners in these and many other fields then complain about not being understood or appreciated by the public[17]. The truly erudite know that the most complex ideas can be conveyed simply enough for anyone to comprehend, if those who generate the ideas understand them well enough. The 'arms race of erudition' itself needs to be deconstructed, for what I suspect we will find are many good ideas blown up to appear far more important than they really are.

Here is where William James's pragmatic test comes in handy. 'What difference does an idea make?', he asked. If it makes no difference to anyone or to anything, an idea has little or no value. The design process shows how this pragmatic test works in the things we use in our daily lives. The most appealing formal idea, the most arresting shape or clever arrangement, has to, at some point in the process, get tested against the question of what difference it makes. Designers have all experienced the loss of an idea that they liked, but that could not withstand this test. But when honest with themselves, most designers will admit, at least privately, that the work is better off without it. This does not mean that no new ideas can get through: James was no anti-intellectual in proposing this test. It simply allows for ideas that matter, that actually solve a problem and that have the 'tough-minded' character that James so admired.

The other pragmatic test of design, of course, is the consequence of the end result: does the design meet the needs identified and the criteria set during the conversation, and does it do so in an elegant, effective, and efficient way? This, too, does not mean that the only good design is the least costly or most efficient. Rather, James would say that it is the one that works the best for those involved at this point in time. Its truthfulness isn't about revealing how it was made or what makes it stand up or which materials it uses; that notion of 'honesty' in design makes the mistake of seeing all values, said Rorty, as a 'mirror of nature'[18]. Instead, what we value is what works for a particular community at a particular time and place, opening up a much more diverse and contextually responsive way of thinking about design than we inherited from modernism.

Other ideas inherited from modernism – such as the notion of design needing to be a total work of art (Gesamtkunstwerk) and a reflection of the spirit of its time (Zeitgeist) – derive from nineteenth-century German idealism of philosophers such as Hegel. These notions have also been in tension with the dominant utilitarian and pragmatic temper of contemporary and especially American culture, in part because they represent ideological positions about how the world should be, rather than how it is and what the consequences of something might be. In reaction to this, we have seen in design and in the other arts two kinds of reactions, one towards post-modernism, whose overt eclecticism thumbs its nose at the idea of there being a single spirit of our time, and the other toward post-structuralism, whose scepticism of all master narratives raises doubts about any 'total' work of art. The difficulty of these 'post' movements is that their coherence lies mostly in what they are critiquing rather than what they constructively create. Indeed, a lack of coherence is part of their point, which is valuable over the short term, but not very useful over time.

The thought of Charles Peirce, the 'father' of pragmatism, offers some ideas of how to move forward. Peirce echoed Hegel in arguing for the continual evolution of all things and in seeing three-part relationships underlying all reality. But where Hegel saw everything moving towards an ideal of absolute freedom, Peirce saw meaning in processes themselves, without believing that we are all heading towards a single end. So, while everything evolves, evolution itself never ends, but is an ongoing process and a continual matter of interpreting the meaning of what happens and what exists. Likewise, where Hegel saw three-part relationships in terms of progress, involving a thesis and its antithesis leading to a new synthesis, Peirce didn't see this as progress so much as simply the way the world itself is organized: with entities, the relationships among those entities, and our interpretations or representations of them[19].

While Peirce's work sounds abstract, it has a lot to offer the very concrete task of constructing a better environment for ourselves. His process orientation suggests that every design will evolve differently given the specific inputs to it at the time. Even the same designer and same client would likely come up with something different in a different time period, since everything, including ourselves and our context, constantly evolve. Peirce's view of reality as fundamentally triadic also makes a difference for design, since it helps us see that creative work involves not only the making

of entities, be they objects or environments, but also the constructing of relationships among them and with them, as well as the developing of representations, interpretations, and general rules about them. Thus design includes not only the designer and client, but also all who have relationships with the design and interpretations of it, suggesting that everything we create continues to evolve long after it is complete.

So pragmatism has meaning and relevance far beyond the popular idea of it. Rather than being a reductive ethics only interested in a very narrow conception of what works, pragmatism has an expansive quality, enlarging our definition of reality to include all the possible interpretations and all the possible consequences of it. And in a period of great uncertainty, in which many more decisions will be made locally by those who have not the leisure or luxury to be anything but pragmatic in all that we do, it's important to see how pragmatism itself can be a way to form community through conversation, to understand others through translation, and to make a difference in people's lives by focusing on what works for them.

And when we encounter those who think they are being pragmatic – when they cut costs to the bone or slap things together without much thought or dismiss any idea not already tested – we should turn pragmatism back on them and ask them what consequences this will have on them and others. Does cutting costs really cut costs when something cheaply done requires costly repairs long before it should? Does slapping something together signify that everything else connected to it is slapped together as well, proving costly in terms of lost loyalties or competitive disadvantage? Does the dismissal of an idea not already tested also dismiss the possibility that the idea might produce results far better than what has been done before? The best way to deal with a reductive form of pragmatism is to be even more pragmatic, and then see what consequences ensue.

Design provides one of the best tools in doing so. Even its most aesthetic aspects or the parts that have no explicit function have to have some pragmatic value if they are to remain and survive being 'value engineered' out. The design community, though, may not take enough advantage of the potential their work has here. This seems especially true of those designers who continue to hold on to a highly idealistic and romantic view of themselves and their work. I have seen incredibly talented designers struggle with little work and even less money, sitting in their offices among the many compelling

drawings and models that have sprung from their imaginations, waiting for someone to recognize their potential and hire them. It's as if they see their work not as process with which to engage a number of participants, but as a fixed product in search of a patron to purchase it. I have left such office visits dismayed at what Williams James would call the 'tender-minded' character of this, and the waste of talent it entails.

This partly arises from attitudes instilled in college, in which the client and the public seem to be seen by some as an obstacle to creativity. I once heard a student exclaim: 'If only there could be design without clients!' – as silly as wishing for medicine without patients or law without the courts. While such attitudes in design schools may come from a well-intentioned desire to free students from too many constraints early in their education, it actually makes matters worse, since the greatest challenge every designer faces is how to decide to go in one direction or another, to choose one option over another. Design involves myriad decisions, and so the real nature of design involves the elimination of possibilities and the editing of options, a process greatly enabled by – not inhibited by – clients and communities.

The answer the design community seems to have arrived at after a century of struggling with this dilemma is that it is up to each of us to develop our own rules, to create our own vision, and then to try to persuade others of its validity through our work. The more compelling the vision or personal the style, we are led to believe, the more people may believe it, and give us the latitude to pursue with relatively few restrictions. That romantic idyll may appeal to design students and to some design journalists ever on the lookout for the next star, but the subjectivity of such a position raises at least two ironies. First, it turns design, the most social art, into a fine art, which by definition it will never be and which, accordingly, makes it almost impossible to practise as a designer, as I saw in some of the offices I used to visit. And second, it makes it difficult to judge whether one design is better than another except in terms of the designer's own subjective opinion, which makes it hard for clients to choose among designers or for the public to assess the work.

The tender-minded nature of all this does a great disservice to both designers and their clients. Despite the appearance of being radical, daring, or brave, design that is highly subjective and self-referential is the easiest of all to do, for it doesn't have to engage many others or take much criticism. Look at the way the media deals with those few designers who do become stars

based a highly idiosyncratic or signature style: the prose is mostly gushing, and what commentary exists is mostly mush. Maybe the stars like it that way; romantics have long been known to have a delicate constitution. But such gentle treatment only disempowers the very people it seeks to elevate, isolating them in the claustrophobia of their own taste and often turning them eventually into caricatures of themselves, having to produce more and more of what made them famous to the point of its becoming pointless.

Richardson, Sullivan, and Wright offer ample evidence that great work can co-exist in the tough-minded world of pragmatic activity. All three built a lot and addressed the needs of a wide variety of clients, and while all had a clear philosophical position, they all were adept at listening and testing their ideas in conversation with and through the participation of their clients. They all refused to become caricatures of themselves, as each changed with the times and the demands they faced. Nor were they unique. Designers of all types do this all the time, with great success and to the benefit of millions of people. Most may never get the attention of Richardson, Sullivan, and Wright – in part because of the paucity of design journals given the amount of work going on – but that doesn't matter. If the work works, if it has made a difference in people's lives and resulted in a better environment, a happier family, a more productive organization, a more satisfied customer, and a more cohesive community – then it has passed the pragmatic test.

The greatest test for all of us is about to be passed out by the natural environment and human demographics. Every one of us will face, to varying degrees, material and physical hardships, as vital resources like inexpensive oil and accessible fresh water become less available, as natural habitats and biological diversity continue to decline, as climate change and coastal flooding gradually increases, and as human populations and consumption levels grow exponentially. No one will be immune to these changes, and however much we mute their effects through more sustainable development and more environmentally friendly technology, nothing we do can entirely stop some potentially catastrophic changes from happening. Even if we eliminated the emission of all human-generated greenhouse gases, for example, the effects of what we have already put into the atmosphere will still have a major impact on our lives over the next century or more. How well we deal, psychologically and materially, with these changes will depend upon how well we have learned the lessons of ethics and how well we translate them into physical form.

Those lessons can be summarized in such a way that we can keep them easily in mind. While this may not do justice to the subtlety of these ideas, grasping the essential features of each of these ethical tools will enable us to use them more easily when needed. In some ways, the oldest ethics, that of the Bhagavad Gita, serves as a summary of much of what followed. It urged us to see the material reality as a kind of illusion and the spirit in all things as most real, to see the ego as a trap and duty as liberating; to see most desires as destructive and self-control as the basis for happiness; and to see self-interest as self-defeating and service to others without expectations of return as the best way to be. Such ideas go so much against the materialism, egotism, hedonism, and greed of our own time that they may sound strange or even silly to us, but they are among the core ideas of ethics and among the most useful tools we can have when the world we have known begins to fall apart. Certainly the themes in the Gita recur in different forms across several cultures and many centuries.

The Buddha, for instance, showed how suffering comes from our attachment to material possessions and to our own ego, and showed us how, through detachment, we can liberate ourselves from what causes us fear, anger, and anxiety – a perspective especially useful in times of loss. Meanwhile, Jesus focused on poverty, and how wealth leads to an impoverishment of the spirit, even as the poor acquire the traits of humility, gentleness, and gratitude that will lead them to inherit an earth that our lack of humility, gentleness, and gratitude has done much to degrade. And Spinoza argued for our oneness with God/nature and how everything we do is simply a mode of that one substance of which we are all a part, making it clear how harming others harms ourselves and damaging nature damages ourselves. Such religious or metaphysical ethics have much to teach us, especially since we live in an era in which there exist so many hostilities among religions. Were the believers of all of these religions to understand the ethics underlying their creeds, they would see how deluded they have become in their drive for domination, how ridiculous they appear in arguing who has the better God, and how far they have strayed from the very religions that they fight so hard to defend.

This constant state of war we seem to be in also reveals the lack of virtue in so many leaders right now. Plato and Aristotle identified the virtues upon which social harmony depends – prudence, temperance, justice, and courage – and we have seen what it means for those in power to lack all four. The potentially catastrophic wave of environmental and demographic changes

on the horizon has many causes, but certainly the poor judgement, lack of moderation, insensitivity to justice, and almost complete lack of courage among corporate and political leaders has played a major part in it. And while we might not expect a president or CEO to have read Plato and Aristotle, many of those in power claim to be people of faith, however rarely they apply the theological virtues of mercy, faith, hope, and love at least in their work lives. Instead, we have seen a growing gap between wealth and poverty, an increase in homelessness and the uninsured, and a distinct lack of concern for displaced workers or endangered species. Such absence of virtue hasn't hurt their rise to power in the past, but the lack of character that characterizes so many leaders in our world will make them unfit to lead in the very different and much more desperate future that they, themselves, have helped create.

We will need different leaders in part because we will need a different social contract, a different relationship among ourselves and with the rest of the species on the planet. The existing contracts we have, based on Leviathan governments and autonomous individuals, each seeking their advantage, will not serve us well in a century in which such advantage taking will increasingly disadvantage everyone. Instead, we will need a lot of experimentation with new arrangements, as the political scientist Thomas Homer-Dixon urges on us, leading to many different possible social contracts at local and regional levels, suited to the community and its situation. Some of these will work better than others and a few may emerge as dominant forms in the future, but it has become clear that any global system – as communism once wanted to be and as capitalism and American-style democracy still foolishly hopes to be – can no longer meet the diverse needs of different cultures, climates, and contexts. Our greatest hope may lie, instead, with reducing the scale of our social contracts and encouraging the creativity of communities to invent new relationships that are more meaningful and more sustainable over the long run.

We all have a duty here, since if we don't start to participate in experimenting with more constructive and conserving ways of living, the alternative is likely to be something few of us will want: highly centralized, authoritarian, and repressive regimes playing one group against another out of fear that someone else will get more than their due. We have all seen examples of this over the last century – with its various forms of fascism and totalitarianism – that appeal to people's worst instincts. As duty ethics teaches us, our responsibility lies in doing what we know to be right, which is to stay focused on what we need and what others need, rather than give in to the fear that

our desires will somehow not be met because someone else is succeeding in meeting theirs. Human needs are simple and relatively easy to satisfy, as Manfred Max-Neef reminds us, and the earth has ample capacity to meet every human need, even with a population a third larger in size than our current one. But it will require a shift in how we think of growth, not as something material in nature, but rather as intellectual, social, and spiritual in character. Increasing numbers of people see this, evident in the flourishing of such things as continuing education, community organizations, and charitable giving, but that has occurred even as our levels of material consumption continue to rise at unsustainable rates. The real change will happen when the almost infinite possibilities of inner growth spurs a much reduced level of material acquisition and consumption.

The consequences of our not moving in this direction, while continuing to pretend that we can have infinite material growth with an exponentially growing population on a finite planet, will be potentially quite dire. We will eventually be forced, by circumstances, to live with reduced means in ways that we may not foresee or be able to control, and no one will welcome the human and environmental consequences of what economists call a 'hard landing' on a global scale. To avoid this, we need to stop being so self-destructively ideological and employ some of the utilitarian and pragmatic values that have been so misapplied by those who claim to embrace them. There is no utility in exhausting essential finite resources, extinguishing species we depend on, or altering the climate to render parts of the globe uninhabitable. And it makes no pragmatic sense to cheapen things that need to last a long time, dispose of things that can last much longer, or not maintain things that can last almost forever. In that sense, utilitarianism and pragmatism may be the most misunderstood of all forms of ethics, simply because they are the most commonly (if often unconsciously) embraced and the most often used to justify actions that have the most negative consequences imaginable. The most useful and pragmatic thing we can do is figure out how to sustain ourselves and as many other species as possible on this one planet of ours for as long as we can. Anything less than that is unethical – and suicidal.

PLACES

Laboratory

Nature does nothing uselessly.

— Aristotle

As I look out my window at my overgrown alley, I am always struck at the sheer exuberance of all that flora, and wonder how that fits with Aristotle's observation that nature does nothing uselessly. What use do all those trees and undergrowth have? Or am I asking the wrong question, based on a faulty idea of what nature entails?

The latter question, my scientist neighbour says, is why he goes to his laboratory every day, out of the drive to learn more about nature. However much he knows about nature, which is a lot, there remains more to do. He also

has reminded me that just as nothing occurs in nature uselessly, so too does nothing happen pointlessly in science; every experiment has a point and even if it doesn't turn out as planned, we can often learn as much from the failures as the successes. The only real failures in science, as in our lives, lies in being dishonest, in so fearing failure that we end up failing ourselves.

The scientific ethic of absolute honesty extends to scientists' work environments: laboratories in which everything seems exposed, from the beakers and bottles to the harsh lighting, hard floors, and hardy furniture. For a group so attentive to other creatures, scientists seem to care little about their own creature comforts. But there also remains an inward quality to most labs that reflects the focus of so much of what scientists do. My neighbour's lab building has long corridors, blank walls, and solid and highly secure doors, echoing the isolation often required by scientists, anxious not to have their work compromised, contaminated, or even co-opted in some way.

That combination of cooperation and competition seems to characterize much of a scientist's professional life. Usually very collaborative, scientists also compete for research funding, peer recognition, and disciplinary regard – a mix of mutual support and struggle that also recalls the dependent and independent variables that they frequently observe in nature itself. It's as if the laboratory itself has become a metaphor for nature, as a set of rooms, each with its own internal interactions and yet linked in various ways to other rooms, to other parts of the building, and to more ephemeral phenomena such as the broader institution, the larger physical context, and the natural environment as a whole.

No scientist needs reminding of the layered quality of reality. And yet, paradoxically, scientists often have to overlook that reality when they work. The amazing productivity of science has stemmed from its ability to focus, to reduce variables and hone in on a testable question, which has led to incredible insights into how many parts of the world work. But, for all of their skill at taking the world apart to understand its operations, scientists have not given nearly as much attention to the whole, to how all of our discoveries fit together. Some sciences, like ecology, have tried to do so, to understand the complex interactions among many phenomena in a given place or among a range of species or material and energy flows. But even they have found it hard to deal with the almost overwhelming number of pieces in nature's puzzle.

Like dealing with Humpty Dumpty, we may find it hard to put the pieces back together again because we still look at nature as a reflection of ourselves, as sets of interacting and interdependent entities. Maybe the only way to understand nature is as an inseparable whole that we will never fully grasp, either because we didn't make it, as the philosopher Giambattista Vico argued, or that we are an inseparable part of it, as the logician Kurt Gödel suggested[20]. This does not mean that science is useless; as Aristotle said, nothing in nature is useless including the things that we do as a part of it. But it may mean that where science will ultimately lead us not only to understanding the parts of nature, but also to a reverence for the whole of it we can never comprehend.

Museum

> *The aim of art is to represent not the outward appearance of things, but their inward significance.*
>
> — Aristotle

Art museums have become a major industry in most cities, places that people make pilgrimages to, myself included. What if, however, with all the great collections of and grand structures we build for art, we have somehow missed the point of art? That sounds like a perverse idea, but if we apply Aristotle's definition of art, as representing the inward significance of things rather than their outer appearance, then we need to ask about the inner significance of the museum itself. Does it paradoxically counter the cultural purpose of art?

The first thing to note is how often the outward appearance of museums contradicts their oft-stated goals. Most museum directors talk about the importance of reaching out to communities, making art more accessible to a wider range of people, and inviting people of all ages to participate in programs. But most museum buildings, even many of the newest and most

progressive, convey a sense of closure and concealment, qualities that seem to contradict the claims of the museums themselves.

The designers of museums have not ignored the wishes of museum directors, in most cases. Instead, architects' work communicates the truly divided intentions of most art institutions, which often advocate openness, accessibility, and participation, even as they treat art as a precious possession, in nearly windowless buildings, with highly controlled access, and little or no public participation in their design. Maybe this is how museums should be, given the irreplaceable art that they own. But the conflicts between the medium and the message, between what museums build and what the institutions say, reveals a tension in the 'art' of the museum.

That tension revolves around the paradox of an institution that houses works that comment upon life even as they require a separation from life. Great art has always been open, accessible, and participatory in the sense that it appeals to people across cultures and time, and prompts their reflection. But the housing of great art cannot be any of those things, lest the art itself be damaged or disappear. Every artist lives this conflict, observing the world and yet retreating from it to create the work about what the world really is about. Should the designers of art museums do the same?

When the French writer and minister of culture, André Malraux, proposed, in the 1950s, a 'museum without walls', distributing art throughout the community, he seemed to understand the conflict between art being about life and art museums being about the protecting of the art from life[21]. Malraux's idea didn't take hold. It showed, however, the urge of the artist to be free of the art museum, to return art to the everyday life from which it sprang, in the same way in which artists, reflecting upon what they see in the world, want to represent their production to the world.

This puts the designers of museums in a bind. Is their work like that of the artist, a representation of some aspect of the world, or is it like the world itself, attempting to contain and in some sense counter the art? Many recent museum buildings seek to have it both ways, needing to function in order to contain the art, and needing to make a statement about the art, and as such, these structures represent one aspect of art's inner significance. A work of art is not just about things outside itself, the subject of the art, and not just about

the thing itself, the object in the form of a painting or sculpture, but also about the impossibility of ever completely capturing the subject in the object.

In that sense, the conflict between what museums aspire to as institutions and what they represent as buildings is inherent in the conflict of art itself, and the reason why, every day, artists get up and apply themselves to their Sisyphean task of rolling their creative rock up the mountain of meaning. As Albert Camus wrote in *The Myth of Sisyphus*, 'The struggle itself is enough to fill a man's heart.'[22]

Loft

Manifest plainness, embrace simplicity, reduce selfishness, have few desires.

— Lao-Tzu

My stoic father used to say that the best way to overcome hardship or loss involves not wanting much. No need to worry about having too little when having little is the point. I've often thought that lofts embody such thinking, with their large, spare living spaces, often in reused industrial buildings or in new structures located in old industrial areas. Originally inhabited by artists and craftspeople seeking inexpensive space in which to work and live, lofts have become home to people whose work involves more the analysis of information than the manipulation of matter. And while the popularity of lofts may turn out to be a passing fad, a transitional form of housing in cities just beginning to recover from the depopulation of decades of suburbanization, loft housing speaks to the paradoxes embedded in our conceptions of a good life.

The tendency in the West to idealize the bohemian life – epitomized by modern artists living in lofts – has a long history, running in parallel to the rise of industrial production and modern bureaucratic organizations. The more we lost a connection to making things by hand or to creating things on our own, the more, it seemed, we envied or emulated the life of those who had escaped such an existence. Some, such as Gauguin, gave up the bureaucratic life for that of the artist. But despite the ancient insight that, as Lao-Tzu said, 'the world is won by those who let it go', most people would not or could not do so, pursuing instead the life of accumulation and the amassing of material wealth that industrial production and modern organizations made ever easier and more affordable[23].

The idealizing of bohemian life, however, remained, and led to a paradox of modern life in which well-to-do people began to accumulate great quantities of simplified things or pay great amounts of money to live a reduced life. The simplification of form and the reduction of materials that have become the hallmarks of modern design began as a bohemian shot across the bow of bureaucratic life. Less is more; form follows function; ornament is a crime. But those bohemian values soon became a badge of honour for the bureaucratic elite, as wealthy individuals commissioned modern homes, powerful corporations inhabited modern offices, and leading institutions collected modern art. The bohemian became a kind of salve, enabling people to live their lives as if they weren't living the lives they were really living.

The embrace of modernism in this way created paradoxes for artists as well, as many bohemians became much better off than their counter-cultural image would suggest. So prevalent did this become that we have stopped seeing the irony of the artist-as-rebel growing wealthy by being ever more outrageous. Many critics have debated the effect this has had on art over the last century, whether it represents the liberation of art from almost all constraint or 'the end of art', as the critic Arthur Danto called it, with artists forced to give ever-larger jolts to an anesthetized population in order for so many of us to feel anything at all[24]. But might this mean something very different in the current century?

As we face an era in which most of us will have to learn to live with less, might we stop idealizing bohemian life and start realizing it? Might we stop seeing modernism as a style that represents a certain social status and instead see it for what it expressed at its inception: a way of living in which, as

Lao-Tzu said, ‘he who knows that enough is enough will always have enough’. In that sense, loft living may hold different meaning for us in the future. They won’t be trendy places in which the well-to-do can play at being bohemian. Instead, they may be part of a widespread need for us to re-inhabit all of the wasted and underutilized space in our cities, living as compactly and as minimally as we can in order to have enough for all of us to live. A lofty goal.

Fort

It is better to conquer yourself than to win a thousand battles.
— Buddha

A guarded coast-guard station once occupied a large fenced-off piece of land behind my boyhood home. It stood as a mysterious place for me, all the more appealing for being off-limits, but I have come to see it differently as an adult: as an example of what it means – and doesn't mean – to live sustainably. That coast-guard station, with its rows of barracks and its separate officers' quarters, represented a tightly controlled and distinctly hierarchical community, able to sustain itself for some period of time in the event of an attack. From large stores of food and water to ample supplies of equipment and personnel, that coast-guard station stood as a kind of self-sufficient island on the land.

At the same time, it stood as a community of the most unsustainable kind. A military compound may remain physically autonomous and relatively isolated,

but it often exists as an imposition on the territory surrounding it, with the nearby landscape cleared to enhance visibility, with resources gathered far and wide to provide for the personnel within, and with the sometimes deliberate destruction of neighbouring settlements in order to assert the dominance and the power of the military. As a result, a fort ironically often ends up destroying that which it seeks to control, able 'to win a thousand battles', as the Buddha put it, while losing the support of those it subjugates and lowering the quality of the natural environment it commands[25].

I now see the coast-guard station of my youth representing a divide in how we deal with resources in the future. The political scientist Thomas Homer-Dixon cautions that one common way in which societies adapt to a scarcity of resources involves their resorting to violence, something that we already have seen around the world in response to depleted water or oil reserves[26]. This 'eco-violence' often has the same paradoxical effect as military action in general, damaging the very resources people fight to possess.

The other way forward, says Homer-Dixon, entails creativity, using the constraints we will increasingly face to spur new forms of living in what he calls a 'catagenesis' – a collapse and subsequent rebirth. We want to believe that the systems we depend on will go on forever, needing only the occasional adjustment, when in fact much of what we have built assumes an almost infinite supply of finite resources such as cheap oil, fresh water, and clean air. Fabricated on such shaky foundations, our 'good life' can collapse suddenly, like a house on an eroding beach or the sudden closure of that coast guard station with the coming of satellite communication.

The creativity that will be required to envision more sustainable ways of living within constraints will become increasingly central to our survival in the future. This will demand not one solution but hundreds of them, driven by an ambitious sense of invention, in which design thinking gets applied to the most fundamental problems of how we should live and what we should do in difficult situations. Designers always ask such questions at local scales, about particular things, but the scope of the questions we will need to address in the future will be unlike anything seen before, based on scarcities many of us can hardly imagine.

In all of this, it will take a great deal of inner strength, an ability to conquer ourselves, as the Buddha said, before we can conquer anything. And it will

result in the variety of solutions that may recall most closely feudal Europe, when military stations served less to dominate territory than to protect people in their diverse forms of survival. We call that period the dark ages, but maybe their darkness comes from our not seeing the inventiveness of people able to live on relatively little.

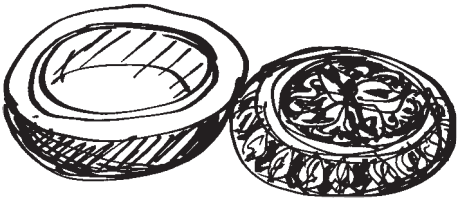
PRINCIPLES

Instead of radical experiments,
see everything in evolutionary terms

One of the paradoxes of our time is how political conservatives, at least in the USA, have become ardent supporters of one of the most radical and continually experimental aspects of modern culture: capitalistic economics. (Communist economics was just as radically experimental, which makes the Cold War politics of the latter half of the twentieth century seem like an argument over two versions of the same revolution.) We see the results of capitalism's radicalism all around us, mainly in the form of new products, services, and systems that have transformed communities, overturned customs, ended livelihoods, inverted values, and bred new trends all the time. Whatever improvements have accrued from this in terms of our quality of life, we have all paid a price for it in terms of environmental damage and social dysfunction, something that conservationists and social conservatives are well aware of, even though the latter often seem oblivious to the economic causes of the effects they don't like. Design, of course, has

benefited greatly from the constant churn of new products, services, and environments spawned by the continual revolution of capitalist economics, and yet designers, too, get caught in the contradictory position of embracing the economics that has helped create the physical effects we often don't like: the sheer ugliness and unsustainability of the commercial developments along our suburban highways, for example. Thanks to ecology, we now know a lot more about how nature deals with change, in much slower and more evolutionary ways. And as the price for our environmental and social sins has become ever steeper, we need to model that evolutionary change in the design of our human ecosystem as well, figuring out a way to move forward in more incremental and adaptable forms. Human civilizations have done so in the past, and we must invent a contemporary version of that for the future, if we are to have a future that isn't just the exhausted and empty shell of all our radicalism gone awry.

Instead of focusing on abstractions, attend to what is real



We all live in the 'real' world and most of us probably think we know the difference between reality and an abstraction of it. Nevertheless, so much of the reality of our daily lives and the designed environments we occupy are the product of abstractions – economic abstractions, such as supply and demand or costs and benefits; legal abstractions, such as zoning and building codes or other requirements and regulations; and ideological abstractions, such as liberal and conservative or pro-choice and pro-life. Such abstractions come to have their own reality, with many people fervently believing in them and spending a great deal of time attending to or defending them. But we rarely talk about the flip side, the abstractness of our everyday reality. Over the last century, humans have had to adapt extremely rapidly to conditions our species has never experienced before, like living hundreds of feet in the air, in sealed air-conditioned buildings, or driving vehicles at high speeds while listening to music and now talking on a cell phone. That humans have adapted so well to such odd conditions says a lot about our flexibility, but it also says a lot about our ability to convince ourselves that the abstractions that underlie such environments – the profit motives that cause us to build ever higher, work ever harder, drive ourselves ever faster – are worth the toll this takes on us and on the planet as a whole. Other species less adaptable, or rather unable to live such abstract lives, have not fared nearly as well, unless of course they fit one of our abstractions, like the turf grass that now carpets North America or the pets that remain the one remaining relationship that most of us have with other animals. Humans have always abstracted our environments, but only recently have the abstractions seemed to get the upper hand, leading many of us to lose contact with any sort of reality our ancestors would have understood. While this, in itself, may sound like an abstraction, we need to design a new relationship between abstraction and reality, one in which we stop seeing other things and other people solely in terms of what they represent and regain the ability to see and accept them – and ourselves– as we are.

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References

Chapter 1

1. US Census Bureau: www.census.gov/ipc/prod/wp02/wp-02003.pdf
2. Pioneering Study Shows Richest Two Percent Own Half World Wealth, UN World Institute for Development Economics Research: http://www.wider.unu.edu/research/2006-2007/2006-2007-1/wider-wdhw-launch-5-12-2006/wider-wdhw-press-release-5-12-2006.htm
3. UN Intergovernmental Panel on Climate Change: http://www.ipcc.ch/
4. Association for the Study of Peak Oil and Gas: http://www.peakoil.net/
5. A summary of Suzuki's talk is at: http://blog.aia.org/aiarchitect/2007/05/we_are_to_the_59th_minute_so_w.html
6. Diamond, J. (2005) *Collapse, How Societies Choose to Fail or Succeed*. Viking, New York
7. US Congress (2006) A Potential Influenza Pandemic: Possible Macroeconomic Effects and Policy Issues, Congressional Budget Office. www.cbo.gov/ftpdocs/69xx/doc6946/12-08-BirdFlu.pdf
8. Myers, N. (2005) Environmental Refugees: An Emergent Security Issue, 13th Economic Forum. www.osce.org/documents/eea/2005/05/14488_en.pdf
9. http://www.solcomhouse.com/drought.htm
10. There are several useful websites on this subject, such as www.peakoil.com and www.lifeaftertheoilcrash.net/
11. Hewitt, C. (2007) *National Design Museum, Design for the Other 90%*. Smithsonian, New York
12. Federal Emergency Management Agency (2007) *Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings*, FEMA Publication #426. Government Printing Office, Washington, DC
13. Architecture 2030: http://www.architecture2030.org/
14. Kunstler, J.H. (1993) *The Geography of Nowhere, The Rise and Decline of America's Man-Made Landscape*. Touchstone Books, New York

15. Smith, A. (1984) *The Theory of Moral Sentiments*. Liberty Fund, Indianapolis, pp. 182–185, 190
16. Smith, A. (1952) An Inquiry Into the Nature and Causes of the Wealth of Nations. In: *Encyclopedia Britannica*. University of Chicago Press, Chicago, vol. 39, p. 12.
17. Illich, I. (1977) *Disabling Professions*. Boyars, London
18. Kunstler, J.H. (2005) *The Long Emergency, Surviving the End of Oil, Climate Change, and Other Converging Catastrophes of the Twenty-First Century*. Grove Press, New York
19. McKibben, B. (1989) *The End of Nature*. Random House, New York
20. McKibben, B. (2003) Worried? Us? *Granta, 83: This Overheating World*, http://www.granta.com/extracts/2032
21. The source of this e-mail remains unclear, although it appears to have had its origin in the work of the late Dartmouth professor Donella H. Meadows: http://members.aol.com/UKpoet/global1.htm
22. Dovring, F. (1984) *Riches to Rags*. Schenkman Books, Rochester
23. Farson. R. Is Architecture as Important as Education? unpublished essay shared by author.
24. Simon, H. (1969) *The Sciences of the Artificial*. MIT Press, Cambridge
25. Worldwatch Institute: www.worldwatch.org
26. Environmental Protection Agency: www.epa.gov

Chapter 2

1. Hollings, C.S. and Gunderson, L. (2002) *Panarchy: Understanding Transformations in Human and Natural Systems*. Island, Washington, DC
2. Homer-Dixon, T. (2006) *The Upside of Down, Catastrophe, Creativity, and the Renewal of Civilization*. Island, Washington, DC
3. Fuksas, M. (2000) *Citta: Less Aesthetics, More Ethics*. Mostra Internazionale di Architettura, Venice. http://architettura.supereva.com/eventi/19990516.htm
4. Singer, P. (1998) Darwin for the Left. *Prospect*, June, p. 279
5. Axelrod, R. (1984) *The Evolution of Cooperation*. Basic Books, New York
6. Spencer, H. (1994), *Political Writings.* Cambridge University Press, Cambridge, 1994*;* Darwin, C. (1963) *Origin of the Species,* Harvard Classics, Vol. 11. Collier, New York
7. Gould, S.J. (1990) *Wonderful Life, The Burgess Shale and the Nature of History*. Norton, New York
8. Lovelock, J. (2006) *The Revenge of Gaia, Earth's Climate Crisis and the Fate of Humanity*. Basic Books, New York

9. Diamond, J. (1997) *Guns, Germs, and Steel, The Fate of Human Societies*. Norton, New York
10. Capra, F. (1996) *The Web of Life, A New Understanding of Living Systems*. Anchor, New York
11. Moore, G.E. (1903) *Principia Ethica*. Cambridge University Press, Cambridge
12. Hume, D. (2003) *A Treatise of Human Nature,* book III, part I, section I (eds. D.F. Norton, M.J. Norton). Oxford University Press, Oxford
13. Stevenson, C. L. (1944) *Ethics and Language*. Yale University Press, New Haven; Ayer, A. J. (1947) *Language, Truth and Logic*. Dover, New York
14. Mackie, J. L. (1977) *Ethics: Inventing Right and Wrong*. Penguin, London; Rorty, R. (1989) *Contingency, Irony, and Solidarity*. Cambridge University Press, Cambridge
15. de Tocqueville, A. (2003) *Democracy in America*. Penguin, London
16. Nietzsche, F. (1998) *Twilight of the Idols: How One Philosophizes with a Hammer*, Expeditions of an Untimely Man, Section 11 (transl. D. Lange). Oxford University Press, Oxford
17. Epicurus (1993) *The Essential Epicurus: Letters, Principal Doctrines, Vatican Sayings, and Fragments* (trans. E. M. O'Connor). Prometheus, Amherst, New York
18. Rybczynski, W. (1986) *Home, A Short History of an Idea*. Viking Penguin, New York
19. Davis, M. (1998) *Ecology of Fear, Los Angeles and the Imagination of Disaster*. Vintage, New York
20. Epictetus (1988) The Discourses of Epictetus (transl. G. Long). *Encyclopedia Britannica*. University of Chicago Press, Chicago, Vol. 12
21. Snow, C.P. (1964) *The Two Cultures: and a Second Look*. Cambridge University Press, Cambridge
22. Jencks, C. and Silver, N. (1973) *Adhocism, The Case for Improvisation*. Anchor, New York

Chapter 3

1. Palleroni, S. (2008) Building Sustainable Communities and Building Citizens. In: *Good Deeds, Good Design 2: Expanding Architecture* (ed. B. Bell). Princeton Architectural Press, New York
2. Foote, F. (2003) Virtues and Vices. In: *Virtue Ethics* (ed. S. Darwall). Blackwell, Oxford; MacIntyre, A. (1997) *After Virtue, A Study in Moral Theory.* University of Notre Dame Press, South Bend; Murdoch, I. (1993) *Metaphysics as a Guide to Morals.* Penguin, London
3. Rawls, J. (1971) *A Theory of Justice.* Harvard University Press, Cambridge, MA; Nagel, T. (1997) *The Last Word, Philosophical Essays.* Oxford

University Press, Oxford; Singer, P. (2000) *Writings on an Ethical Life.* HarperCollins, New York
4. Arendt, H. (1958) *The Human Condition*. University of Chicago Press, Chicago
5. Easwaran, E. (trans.) (2000) *The Bhagavad Gita*. Vintage, New York
6. Boswell, J. (1979) *The Life of Johnson*. Penguin, New York
7. Schumacher, E.F. (1975) *Small is Beautiful: Economics as if People Mattered*. Harper & Row, New York
8. Armstrong, K. (2000) *The Battle for God*. Ballantine, New York
9. Jefferson, T. (1989) *The Jefferson Bible: The Life and morals of Jesus of Nazareth*. Beacon, Boston
10. *New Testament*, Mathew 5:5.
11. Armstrong, K. (2004) *New York Times Magazine*, April 4, p. 17
12. Sinclair, C., conversation with author, 2005
13. Spinoza, B. (1988) Ethics (transl. W. H. White). In: *Encyclopedia Britannica*. University of Chicago Press, Chicago, Vol. 12
14. Frye, N. (1991) *The Modern Century*. Oxford University Press, Oxford
15. Gauchet, M. *The Disenchantment of the World: A Political History of Religion* (transl. O. Burge). Princeton University Press, Princeton
16. Sennett, R. (1977) *The Fall of Public Man*. Knopf, New York
17. Mumford, L. (1963) *Technics and Civilization*. Harcourt, Brace & World, New York
18. Leakey, R. and Lewin, R. (1995) *The Sixth Extinction*. Doubleday, New York
19. Brown, J. and West, G. (2000) *Scaling in Biology*. Oxford University Press, Oxford
20. Brown, J. (2005) Scaling. http://biology.unm.edu/jhbrown/Research/Scaling/Scaling.htm
21. Changing Images of Man, Center for the Study of Social Policy for the Charles Kettering Foundation (Policy Research Report 4, 1973)
22. Huxley, A. (2004) *The Perennial Philosophy*. Perennial Classics, New York
23. Plotinus (1988) *The Six Enneads* (transl. S. MacKenna, B. S. Page). In: *Encyclopedia Britannica*. University of Chicago Press, Chicago, Vol. 17
24. White, C. (2007) The Idols of Environmentalism. *Harpers*, August
25. Freud, S. (1947) *On War, Sex, and Neurosis* (ed. S. Katz). Arts & Science Press, New York
26. Commanda, W.: www.learningtogive.org
27. Barrett, W. (1978) *The Illusion of Technique, A Search for Meaning in a Technological Civilization*. Anchor, New York
28. Kant, I. (1988) Critique of Practical Reason. In: *Encyclopedia Britanni*ca. University of Chicago Press, Chicago, Vol. 42
29. Hadot, P. (1995) *Philosophy as a Way of Life* (transl. M. Chase). Blackwell, Oxford

30. Singer, P. (2000) *Writings on an Ethical Life*. HarperCollins, New York
31. Thoreau, H.D. (1981) *Walden and Other Writings*. Bantam, New York

Chapter 4

1. Nietzsche, F. (2000) *The Birth of Tragedy* (transl. D. Smith). Oxford University Press, Oxford
2. Wolgast, E. (1992) *Ethics of an Artificial Person: Lost Responsibility in Professions and Organizations*. Stanford University Press, Stanford
3. Plato (1988) *The Republic*, Dialogues of Plato (transl. B. Jowett). In: *Encyclopedia Britanni*ca. University of Chicago Press, Chicago, Vol. 7
4. Seneca, (1968) *Stoic Philosophy of Seneca: Essays and Letters*. Norton, New York
5. Rees, W. and Wackernagel, M. (1995) *Our Ecological Footprint; Reducing Human Impact on the Earth*. New Society Publishers, Philadelphia
6. Aristotle (1988) Nicomachean Ethics (transl. W.D. Ross). In: *Encyclopedia Britannica*. University of Chicago Press, Chicago, Vol. 9
7. Jacobs, J. (1970) *The Economy of Cities*. Vintage, New York
8. Descartes, R. (1988) Meditations on First Philosophy (transl. E. Haldane, G.R.T. Ross). In: *Encyclopedia Britannica*. University of Chicago Press, Chicago, Vol. 31
9. de Unamuno, M. (1972) *The Tragic Sense of Life in Men and Nations* (transl. A. Kerrigan). Princeton University Press, Princeton
10. O'Hear, A. (2000) *After Progress, Finding the Old Way Forward*. St Martin's Press, New York
11. James, W. (1985) *The Varieties of Religious Experience*. Harvard University Press, Cambridge, MA
12. Hart, D. and Sussman, R. (2005) *Man the Hunted: Primates, Predators, and Human Evolution*. Westview, New York
13. Isaacson, W. (2007) *Einstein: His Life and Universe*. Simon & Schuster, New York

Chapter 5

1. Kunstler, J.H. (2005) *The Long Emergency, Surviving the End of Oil, Climate Change, and Other Converging Catastrophes of the Twenty-First Century*. Grove, New York
2. Hobbes, T. (1988) Leviathan (ed. N. Fuller). In: *Encyclopedia Britannica.* University of Chicago Press, Chicago, Vol. 23

3. Rousseau, J. J. (1988) A Discourse on the Origins of Inequality (transl. G.D.H Cole). In: *Encyclopedia Britanni*ca. University of Chicago Press, Chicago, Vol. 38
4. Rawls, J. (1971) *A Theory of Justice*. Harvard University Press, Cambridge, MA
5. Singer, P. (2000) *Writings on an Ethical Life*. HarperCollins, New York
6. Aristotle (1988) Nicomachean Ethics (transl. W.D. Ross). In: *Encyclopedia Britannica*. University of Chicago Press, Chicago, Vol. 9
7. *Old Testament*, Genesis, 1:26
8. Lilla, M. (2001) *The Reckless Mind, Intellectuals in Politics*. The New York Review of Books, New York
9. Lilla, M. (2001) *New York Review of Books*, Sept. 20
10. More, T. (2001) *Utopia*. Yale University Press, New Haven
11. Hardin, G. (1993) *Living Within Limits, Ecology, Economics and Population Taboos*. Oxford University Press, Oxford
12. (http://www.worldometers.info/), (http://www.environmentalindicators.com/htdocs/indicators/6wate.htm)
13. Hochberg, F. (2002) *New York Times*, January 5, p. A31
14. Nozick, R. (1974) *Anarchy, State, and Utopia*. Basic Books, New York
15. Lang, M. (1999) *Designing Utopia, John Ruskin's Urban Vision for Britain and America*. Black Rose, Montreal
16. Jacoby, R. *The End of Utopia: Politics and Culture in an Age of Apathy*. Basic Books, New York
17. Salmon, W. (ed.) (2001) *Zeno's Paradoxes*. Hackett, Indianapolis
18. Gelb, M.J. (1998) *How to Think like Leonardo da Vinci*. Delacorte, New York
19. Lewis, H. (1990) *A Question of Values, Six Ways We Makes the Personal Choices that Shape our Lives*. Harper & Row, San Francisco
20. Meinig, D.W. (1986) *The Shaping of America, A Geographical Perspective on 500 Years of History*. Yale University Press, New Haven
21. Bacon, F. (1951) *The Advancement of Learning and New Atlantis*. Oxford University Press, London
22. Hubbard, W., A Theory of Practice, unpublished manuscript
23. Rothstein, E. (2000) Paradise Lost: Life Without Utopias, *New York Times*, February 5
24. Pollan, M. (2007) Unhappy Meals *New York Times*, January 28

Chapter 6

1. Max-Neef, M. (1992) Development and Human Needs. In: *Real-life Economics: Understanding Wealth Creation* (eds. P. Ekins and M. Max-Neef). Routledge, London

2. Ignatieff, M. (1984) *The Needs of Strangers*. Penguin, New York
3. Kant, I. (1988) Critique of Practical Reason. In: *Encyclopedia Britannica*. University of Chicago Press, Chicago, Vol. 42
4. Gilbert, D. (2007) *Stumbling on Happiness*. Vintage, New York
5. Weber, M. (2002) *The Protestant Ethic and the Spirit of Capitalism* (transl. S. Kalberg). Blackwell, Oxford
6. Singer, P. (2000) *Writings on an Ethical Life*. HarperCollins, New York
7. Frank, R. (2007) *Falling Behind, How Rising Inequality Harms the Middle Class*. University of California Press, Berkeley
8. Frankl, V. (1992) *Man's Search for Meaning: An Introduction to Logotherapy*. Beacon, Boston
9. Berlin, I. (1969) Two Concepts of Liberty. In: *Four Essays on Liberty*. Oxford University Press, Oxford
10. Block, J. (2002) *A Nation of Agents: The American Path to a Modern Self and Society*. Harvard University Press, Cambridge
11. Homer-Dixon, T. (2006) *The Upside of Down, Catastrophe, Creativity, and the Renewal of Civilization*. Island, Washington, DC
12. Mitchell, W. (1999) *E-topia, urban life Jim – but not as we know it*. MIT Press, Cambridge, MA
13. Fisher, T. (2005) New opportunities for campus offices, *Chronicle of Higher Education Review*, March 25

Chapter 7

1. Gutman, R. (1988) *Architectural Practice: A Critical View*. Princeton Architectural Press, New York
2. Bentham, J. (1935) *An Introduction to the Principles of Morals and Legislation*. Doubleday, Doran & Company, Garden City, NJ
3. Singer, P. (2002) *One World, The Ethics of Globalization*. Yale University Press, New Haven
4. MacIntyre, A. (1997) *After Virtue, A Study in Moral Theory*. University of Notre Dame Press, South Bend
5. Pine, B.J. and Gilmore, J. (1999) *The Experience Economy: Work is Theatre & Every Business a Stage*. Harvard Business School Press, Boston
6. Hubbard, W., A Theory of Practice, unpublished manuscript
7. Aristotle (1988) Nicomachean Ethics (transl. W.D. Ross). In: *Encyclopedia Britannica*. University of Chicago Press, Chicago, Vol. 9
8. Benyus, J. (1997) *Biomimcry: Innovation Inspired by Nature*. Morrow, New York
9. Peirce, C.S. (1972) *The Essential Writings* (ed. E. Moore). Harper & Row, New York

10. James, W. (1931) *The Will to Believe, and Other Essays in Popular Philosophy*. Longmans, Green & Company, New York
11. Sullivan, L. (1956) *The Autobiography of an Idea*. Dover, New York
12. Dewey, J. (1939) *Intelligence in the Modern World* (ed. J. Ratner). Random House, New York
13. Wright, F.L. (1958) *The Living City*. New American Library, New York
14. Rorty, R. (1982) *Consequences of Pragmatism*. University of Minnesota Press, Minneapolis
15. Rorty, R. (1989) *Contingency, Irony, and Solidarity*. Cambridge University Press, Cambridge
16. Wittgenstein, L. (1958) *Philosophical Investigations* (transl. G.E.M. Anscombe). Blackwell, Oxford,
17. Frank, R. (2007) *Falling Behind, How Rising Inequality Harms the Middle Class*. University of California Press, Berkeley
18. Rorty, R. (1979) *Philosophy and the Mirror of Nature*. Princeton University Press, Princeton
19. Peirce, C.S. (1972) *The Essential Writings* (ed. E. Moore). Harper & Row, New York
20. Vico, G. (2002) *The First New Science* (transl. L.Pompa). Cambridge University Press, Cambridge; Gödel, K. (1983–2003) *Collected Works* (ed. S. Feferman). Oxford University Press, Oxford,
21. Malraux, A. (1978) *The Voices of Silence* (transl. S. Gilbert). Princeton University Press, Princeton
22. Camus, A. (1991) *The Myth of Sisyphus and Other Essays*. Vintage, New York
23. Lao-Tzu, (1961) *Tao Teh Ching*. Shambhala, St John's University Press, New York
24. Danto, A. (1997) *After the End of Art*. Princeton University Press, Princeton
25. Hanh Nhat.Hanh (1998) *The Heart of the Buddha's Teaching*. Parallax, Berkeley
26. Homer-Dixon, T. (2006) *The Upside of Down, Catastrophe, Creativity, and the Renewal of Civilization*. Island, Washington, DC

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