

The Sleepwalk of The Moderns:

Economics, Ecology and Technological Somnambulism

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Introduction

The artefacts made by humans by way of techniques have often it seems, either directly or indirectly, become the tools utilised by humans to further the destruction of the habitats that they inhabit or visit (Diamond 2005). This is not a modern phenomenon but, some would argue, a direct result of our composition, both in terms of cognition and the configuration of our bodies (Rees 2010). The abilities of humans to create tools, harness fire, wind and water, and build upon these objects and processes to create ever more complex machines and systems, grants them the ability to overcome natural predators, utilise (rather than pursue) nature, and proliferate to levels as yet unknown and unprecedented. Throughout the history of the human, technological somnambulism (defined by Winner (2004) as a state of sleepwalking in our mediations with technology), is a prevailing theme whereby the instigation of technical objects and systems seems to take precedence over humanist considerations. What are the causes of this 'sleepwalking', and why does it seem to occur throughout history?

Repeatedly Re-Creating The World

The creation of a world filled with technological objects allows the human, by virtue of the facilities granted by these, to utilise the time and man-power afforded by, as well as the utility of, the objects themselves. This allows for the creation of yet more complex objects, machines and systems. At each stage of this process the human has become subordinate to the system, as in the cases of agriculture, industrialisation and now, in many parts of the world, high technology systems, such as digital electronics and software, and advanced, interventionist, molecular biotechnology (Postman 1993). When the agricultural paradigm took hold during the Neolithic Revolution with the formation of agrarian societies, the greater efficiency of the farming methods

employed resulted in a food surplus and thus a rise in population, as well as a profound change in human lifestyle (Bellwood 2004). Though not driven by economics as we now know it, this change was, nevertheless, instigated by the resource requirements of society. The industrial age gave rise to the modern factory and generated an enormous movement of people in response to new labour requirements; as a direct result, the proto-modern urban environment was created. This, the forerunner of the modern town and city, brought with it a unique and new set of problems (such as waste disposal, disease control and food transportation) – these have been largely dealt with via technological solutions, further feeding into the upward climb towards technical complexity. This era was driven primarily by economic concerns (Ashton 1948). We are currently moving from the age of digital information to that of biological information; the point of total ubiquity of computation has been virtually reached in many parts of the world (Dourish and Bell 2011), and the outgoing 'information age' has directly resulted in many alterations in the life patterns of societies. People in large urban centres now largely work in an entirely computer-mediated fashion, often embedded in a computationally controlled telecommunications system. Others, largely in rural or ghetto environments, recycle electronics and often suffer from toxicity as a result, in an attempt to forge a living from obsolete digital devices (Hicks et al. 2005).

Techno-Logic, Bio-logic, and the trend against Entropy

The tendency towards technological complexity, and the way that society moulds itself around the systems that it creates, speaks of more than determinism; it also serves to negate concepts of the unnatural when thinking in terms of technology. Even a piece of computer software, when instantiated by the act of the double-click, is composed of electrons, a substrate, some packaging and, often, a human to receive the output. All of these things are the result of nature. At some

level, even in cases where machine-processes have ultimately created the 'instructions' for a piece of software, a human or a group of humans can claim to have authored the code. The technology has not determined anything; the state of our created world and the way we live in this world are one and the same thing, and both are the result of entirely natural processes. This is not to say that this upward trend in systemic complexity, or 'progress' as it is commonly termed, is either inevitable, desirable, or infinite in capacity. The last point in particular is clearly impossible; the second debatable. The first, the inevitability of progress, though a good thing from a certain perspective, is actually a matter of choice. Humans can decide what to create and what not to create, dependent only upon will, resources and effort. Largely though decisions such as these are, in human societies, more reliant on political and social factors, particularly those of an economic nature. If anything the modern world could be said to have been more profoundly shaped by economic determinism than any other factor (Lucas 1988).

Fighting the Non-War

Technological somnambulism, the tendency that humans have for utilising technical artefacts while failing to consider the consequences of doing so, could be said to be one effect of the inextricably linked state that is human culture and society. A society that is connected through, and formed partially by, objects created by humans. As the makers of objects, and the descendants of makers, humans and their technology have become a system; a Latourian network of human and non-human actants, of black boxes and sub-systems, of nodes of agency connected by interactions of many kinds. Once the learning curve of a new procedure has been successfully ascended, the human will grasp and utilise what surrounds him (Ingold 1994). The world finds itself now nearing an interface between eras – that when our creations aided us in the fight for survival has long

passed, and we have been residing in a period of battle. Though the concept that a single species could 'defeat' the system of which it is a part is, frankly, illogical, the point has arrived when the tools are available to do just that. Current human living systems, though guilty of over-utilisation of resources and over-pollution, have largely produced these consequences through a lack of understanding of the dynamics of the world system as a whole. This is no longer the case, though many details still elude science and there are doubtlessly fundamentals yet to grasp, but the tendency of humans is to nevertheless sleepwalk through the technological environment, regardless of what we now understand. Power generation, atmospheric function (and potential dysfunction), and food production, for example, are well understood fields with clear consequences for both human society and the greater network within which it resides. Many of these problems are now being addressed according to some of the principles already discussed: humans are attempting to develop technological solutions to problems that have largely been instigated by previous generations of technological solutions. This could be described as network-wide, recursive, technological somnambulism, whereby almost all technologies developed to address ecological problems actually generate further ecological problems, as well as increased numbers of objects. The generator of this state of affairs, economics, is directly opposed to ecology and is, as a result, continuing with its mission to convert all available resources into manufactured objects and, through these, money. This profound conflict, though not inevitable, desirable or indefinite, is nevertheless occurring, and economics appears to be 'winning' (Rees 2010).

Sun Bathing

Much that has been written here is common knowledge, and the result of scientific consensus.

Despite this our use of energy continues to rise, and our best efforts to contain this technologically

are insufficient. According to a report from 2011, computer data centres utilised around 1.5% of global energy in 2007¹. Power consumption is set to rise by some 19% from 2011 levels in 2012, despite greater efficiency in the use of power that technological advances allow us. Our power generation capacity actually needs to increase over the next decade to meet demand, despite the fact that we need to reduce energy consumption and pollution. This forces the question: why is society intent on utilising systems that run counter to the advice given by those who created those very systems? Scientists, responsible for the fundamental knowledge that enables our artifice, are largely agreed on the results of our manufacture and consumption, population and pollution. Is it because, as a global society, humans expect constant 'progress' through technological means and are unable to conceive of any other approach? Perhaps the shallow analyses of technological solutions offered by economics can also be explained by this expectation.

Hybrids

Technological somnambulism can be made material in the form of the Toyota Prius. The Prius is a hybrid car, featuring both electric motors and batteries, and a petrol-fuelled internal combustion engine. The theory is, when driving slowly (such as in a town) the electric system provides the power and the car uses no fossil fuel and emits no pollution. When more power is required the engine cuts in and powers the car, as well as charging the batteries. This can, in theory, result in lower overall fuel consumption and pollution from the Prius, but often in practice it does not. The weight of the batteries means that, when driven vigorously, the Prius uses more fuel than a normal, petrol-powered car. Hybrid vehicles are also expensive (both financially and ecologically) to manufacture, and are likely to have a shorter life than petrol-driven vehicles, resulting in a larger ecological impact than the more conventional equivalent². Clearly the Prius achieves exactly the

opposite of what it pertains to, or indeed what is necessary, yet it continues to be purchased by consumers who cite 'green' credentials when they do so. A clearer case of 'sleep walking' would be hard to find.

Time For An Equation!

Technological solutions to ecological problems, though a typical response given the prevalence of economics in social policy creation, nonetheless makes little sense from the logical perspective.

This can be modelled as below.

Let:

E = economics, H = human labour, M = material, P = pollution, S = energy (S for the Sun – the original source of our energy), T = technical artefacts

The basic equation is laid out as follows:

$$E (S + M + H) = T + P$$

Let us make the following assumptions:

- 1) Economics, in the modern world, drives the development of technology.
- 2) Technological artefacts increase the rate of production of newer technologies.
- 3) Pollution rises in a linear relationship with the production of technology.
- 4) Pollution is cumulative.

Finally, lets make it recursive, adding human labour, energy and materials at each economically-

driven stage, and lets initiate the equation again, feeding the results from each stage back into the procedure:

$$E (S + M + H) = T + P$$

$$\Rightarrow T (E (S + M + H)) = T^2 + P + P^2$$

$$\Rightarrow T^2 (E (S + M + H)) = T^3 + P + P^2 + P^3$$

$$\Rightarrow T^3 (E (S + M + H)) = T^4 + P + P^2 + P^3 + P^4$$

$$\Rightarrow T^4 (E (S + M + H)) = T^5 + P + P^2 + P^3 + P^4 + P^5$$

ad infinitum.

In reality this equation cannot tend toward infinity since S and M are finite, as is the available capacity to contain P. In most cases, T is also instantiated in the form of objects which must also be housed. Instances of H cannot rise to infinite levels. This equation illustrates, in a rudimentary way, that given cumulative and consistent pollution production, this rapidly outstrips other factors. An assumption that T can outrun P does not, in this context, make mathematical sense. Technological somnambulism may be the factor under discussion but perhaps it is only a symptom – the result of economic decisions about technological development, contradictory information, and logical errors relating to technological solutions to ecological problems being delivered to society, combined with the human tendency to subordinate to technological systems, as throughout history.

Conclusion

Technological somnambulism is relevant as an anthropological statement because it describes a common human state. At every paradigm-shifting stage of the evolution of society, humans have altered their behaviours to fit in with the technologically induced change (Postman 1993). This is not to say that we are ruled by technological determinism; humans have agency and the ability to choose. This is, in fact, an encouraging state of affairs since behavioural, not technological, change is what is required at the present time. The historical perspective reveals the work of human society and its impact on all other aspects of the network that is the world, such as the profound changes in the habitats of southern England due to agricultural development or, more recently, acid rain. It is ultimately the behaviour of human agents, in creating and then using objects, that impacts on both human society and the planet as a whole most strongly. The sleepwalk of the 'moderns' is no different to that of the 'ancients'; only the scale of the impact has changed. Because of this, it is becoming more and more necessary to ask, are humans prone to suffering from technological somnambulism, or are they fundamentally careless, and driven solely by the material? Perhaps the answer is of no importance, and the anthropological method must take a back-seat to the sociological. The economic and political drives of society as a whole may be enforcing this state within its members and, once again, human culture has become subordinate to the technical system within which it is embedded.

Notes

1. Data Centre Dynamics - report: Energy Demand 2011–12.

<http://www.datacenterdynamics.com/research/energy-demand-2011-12>

2. Easy Ways to Go Green - article: Are Hybrids Really a Green Motoring Solution?

<http://www.easywaystogogreen.com/hybrid-and-green-cars/are-hybrids-really-a-green-motoring-solution>

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