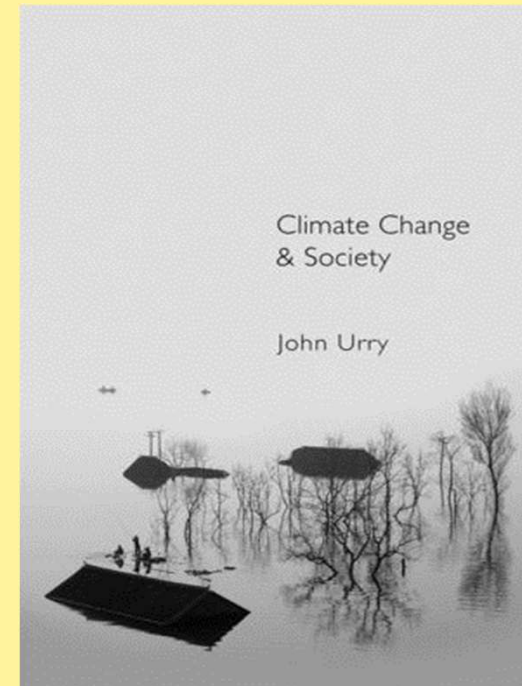


CLIMATE CHANGE AND SOCIETY

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CLIMATE CHANGE IS AN ENERGY ISSUE

Schumacher: 'There is no substitute for energy. The whole edifice of modern society is built upon it...it is not "just another commodity" but the precondition of all commodities, a basic factor equal with air, water, and earth'

McNeill notes that: 'We have deployed more energy since 1900 than all of human history before 1900'

Stern: climate change is 'the world's greatest ever market failure' – and 'peak oil' is maybe the world's second greatest market failure

'HUMAN BEHAVIOUR'

The sciences of climate change make it clear that 'human behaviour' is central to 'global warming'. Those sciences reveal how climate change is too important to be left to the sciences!

Climate change is not a purely 'scientific' problem - human actions are wholly complicit within the apparent warming of the planet.

Such warming will only be slowed down or reduced if 'humans' around the world behave very differently.

But economists are viewed as being best able to examine these 'human' dimensions. See *Stern Review* - but in its later sections social customs enter the analysis but are viewed as not being fully explicable by 'economics'. So what are some alternative ideas here?

LIMITS OF ECONOMICS

First, economic institutions are important often because of their social and political consequences. Large global corporations have huge interests in the 'business as usual' of *'carbon capitalism'*.

Second, economists regard *energy* as generating about 5% of the GDP of an economy because this is roughly what it costs. But carbon-based energy is a unique bundle of non-renewable commodities. Energy is not any commodity.

Third, most of the time people do not behave as individually rational economic consumers. People are creatures of social *habitation*. And habits can spread within a society through media and advertising. These habits become widespread and embodied 'social practices' which are hard to reverse

Fourth, changes in habits do occur and they can occur *rapidly*, such as mobile telephony. Fixed routines may pass thresholds and turn into their opposite.

Fifth, low carbon systems and lives will only become significant if they become matters of new *fashion* ultimately spreading on a global scale

HABITS AND SYSTEMS

Habits derive from systems lying outside 'individuals'

There is no tendency for systems to move towards equilibrium

Systems significant in the contemporary world are simultaneously economic, physical, technological, political and social – sociotechnical

There is increased linking of system components through software, cybernetic architecture and networking

There is an unpredictability of systems with 'non-linear' relations between 'causes' and 'effects'

Systems once established can get 'locked in' over decades in relationship to each other

Systems are clustered

AMERICAN ENERGY AND LOCK IN

- **David Nye: a 'high-energy regime touched every aspect of daily life. It promised a future of miracle fabrics, inexpensive food, larger suburban houses, faster travel, cheaper fuels, climate control, and limitless growth. Even the music of the emerging counterculture was plugged in'**
- **This was a system clustering that was formed in the first half or so of the C20th**
- **Average household of 1970 commanded more energy than a C18th small town**
- **US accounts for one third of global wealth, 22% of world energy consumption, one quarter of total carbon emissions (population is only 5%), twice the GHG emissions of Europe but with similar standard of living**
- **Societies thus get locked into very different energy trajectories**

LOCKED INTO OIL

Oil provides almost all transportation energy in the modern world (at least 95%) - it uniquely makes possible mobile lives including collegial, family and friendship miles

Fuels the world's ships that transport components, commodities and food on a global scale

Is an element of most manufactured goods (95%)

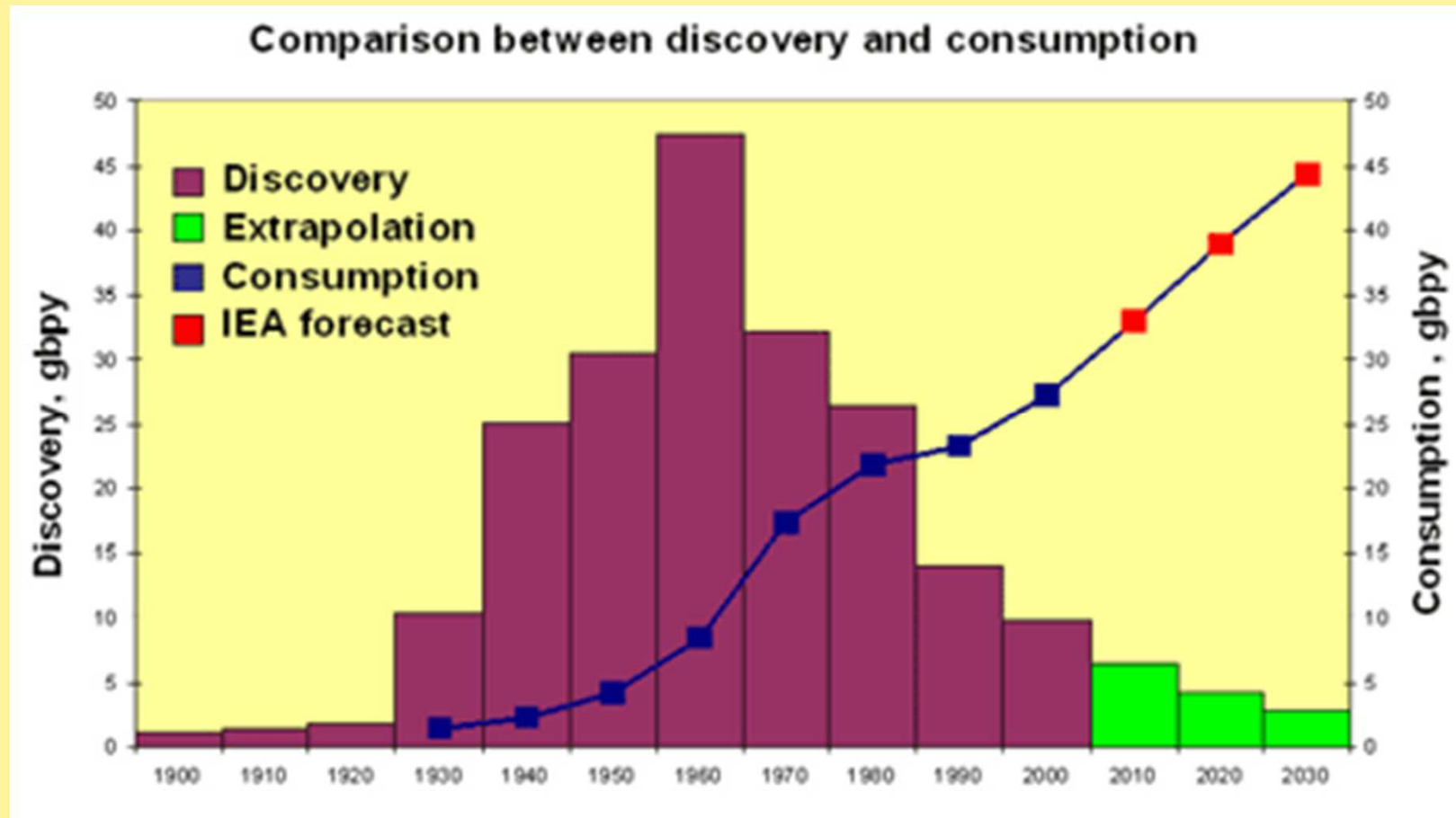
Is crucial to at least 95% of food production for a rising world population through irrigation, transport, pesticides, fertilisers

Is crucial in providing back-up power and lighting

And according to IEA oil supply peaked in 2006 – HSBC's Chief Economist 'there could be as little as 49 years of oil left'

Tough oil rather than easy oil in the future

PEAK OIL?



EXAMPLES OF HIGH CARBON SOCIAL PRACTICES

- **Overseas holidays**
- **Driving to the shops**
- **Showering daily**
- **The school run**
- **Drinking foreign beers/wines**
- **Second homes**
- **Climate control rather than clothing control**
- **Driving through well lit streets**
- **Dining out**
- **Global friendships**
- **Working on projects with a global team**

FINDING REVERSE GEAR

Moving to a low carbon economy-and-society involves ‘reversing’ most systems set in motion during the C20th. Such a reversal comes up against:

1. systemic carbon interests who themselves are causing the rising GHG emissions – a wicked problem
2. the long term path dependencies of existing systems including routines
3. How low carbon will reduce short term levels of income and consumption
4. the difficulty of orchestrating a global polity to reset global agendas
5. general slowness of societal change – the enduring late C19 car system
6. states are rarely able to bring about change from the top partly because of resistance and opposition
7. lack of time available to make a seismic shift or system reversal since changes in the atmosphere are already ‘in the system’
8. the need to change multiple systems simultaneously to generate a new low carbon *cluster*

SYSTEMS AND FUTURES

Central to many future scenarios are new technologies and of their transforming impacts

BUT it is important to resist a technology-first analysis since technologies do not just develop for endogenous reasons

NOR do they then simply transform the economic and social landscape in their own image once developed

technologies are always embedded - in forms of economic, social and political life

they depend upon business *and* sociological models

innovation involves synchronisation across many different social, economic and political entities

innovation depends upon fun as much as upon fear

innovation of mobile communications shows how systems change but often not through a simple replacement of one system by another

BUCKMINSTER FULLER

‘You never change anything by fighting the existing reality. To change something, build a new model that makes the existing model obsolete’.

Kingsley Dennis and John Urry

after
the car



A 'POST CAR' SYSTEM?

ALL HAVE TO CHANGE:

- shifts in transport *policy* in cities away from predict and provide
- new *fuel systems* for cars, vans and buses
- *new materials* for constructing 'car' bodies
- *smart vehicles*
- *deprivatise* cars through city-wide car-sharing, cooperative car clubs and smart car-hire schemes
- 'smart-card' *technology* to transfer information from car to home, to bus, to train, to workplace, to web site, to bank.
- new *social* practices
- *disruptive* innovation

SYSTEMS

- Various interlocking systems have taken the world into uncharted and possibly irreversible territory
- Thus all societies around the world need to effect a huge PLANNED shift, unparalleled in human history, from a *growing* high carbon economy-and-society to a dramatically lower carbon economy-and-society . There is only limited time according to Stern
- Neither US nor China – the 2 world’s largest emitters – seem able to slow down this juggernaut. They cancel each other out. A wicked problem
- And there is a double whammy here, of reducing energy and rising costs, combined with increasingly significant climate change effects especially in *The Tropic of Chaos*
- This is not a question of changing what individuals do but changing whole *systems* of economic, technological and social practice, of practices and habits
- And that is why we need to *reverse* ‘economy-and-society’. Changing systems must appear to populations as more desirable and fashionable
- New systems presuppose new innovations but many innovations in the contemporary world, such as those in finance and the marketising of climates, make the situation much worse through generating even more of a bubble economy

SYSTEM CHANGE

US National Intelligence Council: ‘an energy transition, for example, is inevitable...An energy transition from one type of fuel (fossil fuels) to another (alternative) is an event that historically has only happened once a century at most with momentous consequences’.

Innovations at least presuppose the combining of isolated islands of an archipelago into a different system. According to Brian Arthur this takes three to four decades . There may well not be enough time before different climate, economic, social and political consequences unfold (see *The Nature of Technology*)

LOW CARBON TECHNOLOGICAL PARADIGM

- *re-designing* by public sector, corporations, thinktanks and NGOs of places, computers, personal communication devices and movement, so as to tip societies towards a 'post-oil mobility' pattern
- developing *low carbon financial investments* and new financial instruments on a vast scale
- *innovating* through multiple 'users' of consumer communities engaging in product modification, making fashionable various alternatives and developing collective innovation
- *encouraging 'access by proximity'* through redesigning neighbourhoods and patterns of living
- *developing democratic participation* and effective political leadership
- *simulating* physical co-presence through virtual travel and hence reducing physical travel
- *innovating software* systems that 'intelligently' work out the best means of doing tasks
- *developing multiple, dense* forms of movement made up of small, ultra-light, smart, probably battery-based, deprivatised 'vehicles'; with smart 'cards' controlling access to and payment
- *regulating access*, organise price and control vehicle speed
- personal vehicles to become electronically *integrated* through information, payment systems and physical access with collective forms of transport
- *reengineering 'success'* so that personal and financial gain is measured by low carbon practices

DANGERS OF FEAR

We know from Friedman there is no such thing as a free lunch. But the C20th operated as though that century was a free lunch

Now when we are in the next century we find that there are no good outcomes. James Lovelock: 'So is our civilization doomed, and will this century mark its end with a massive decline in population, leaving a few survivors in a torrid society ruled by warlords on a hostile and disabled planet?'

Change from the 'top' might occur but through a 'shock doctrine' and a 'global war' that short-circuits normal procedures and protocols (as after September 11 and the 'global war on terror').

A massive collapse of oil supply or oil price increase or dramatic flooding or drought in a global city (Katrina times 10!) could provoke a 'war on climate change'.

But shock doctrines and many kinds of 'war' are bad for democratic practices. So imposing a low carbon 'economy-and-society' might follow a massive global shock and a global war on climate. Out of the frying pan.... catastrophes and the fear of catastrophes seem on global agendas

How to peacefully plan for and realise low carbon systems and practices around the world when there is so much opposition and fear? The key question is how to make fun and fashion the bases of low carbon lives....

CATASTROPHISM

Martin Rees, *Our Final Century*

Roy Woodbridge, *The Next World War. Tribes, Cities, Nations, and Ecological Decline*

Jared Diamond, *Collapse: how societies choose to fail or survive*

James Lovelock, *The Revenge of Gaia*

Bill McGuire, *Global Catastrophes: A Very Short Introduction*

Charles Perrow, *The Next Catastrophe*

Elizabeth Kolbert, *Field Notes from a Catastrophe. A Frontline Report on Climate Change*

Fred Pearce, *With Speed and Violence. Why Scientists fear Tipping Points in Climate Change*

Meyer Hillman, Tina Fawcett, Sudhir Raja, *The Suicidal Planet. How to prevent global climate catastrophe*

Kurt Campbell (ed), *Climatic Cataclysm: The Foreign Policy and National Security Implications of Climate Change*

Vaclav Smil, *Global Catastrophes and Trends: The Next Fifty Years*

Dmitry Orlov, *Reinventing Collapse: The Soviet Example and American Prospects*

David Orr, *Down to the Wire. Confronting Climate Collapse*

Thomas Friedman, *Hot, Flat and Crowded*

Keith Farnish, *Time's Up!: An Uncivilized Solution to a Global Crisis*