

Geo-engineering, imagining and the problem cycle: A cultural complex in action

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Uncertainty, Imagining and Ontology

Humans cannot ‘know’ the future until it has passed (if then). Consequently, moving towards the future is always accompanied by uncertainty, whether accepted or not. Whenever people envision or plan for the future, they deal with an ‘imagining’. Imagining evokes ontology, or is based on an ontology, because humans imagine with what they imagine or mythologise the being of the world to be. This includes its fixities, its probable changes, and its fundamental nature and constituents. Acceptable channels of imagining are further influenced by social groups: by the theories, or myths, they hold about the world; the psychological and active dispositions they encourage; and by the power relations within and between them. The patterns of these channels of imagining, form what I call a ‘cultural complex’. Problems (imagined or otherwise) are also important for imagining as, without the appearance of problems, people can assume the future will resemble the present. By presenting a range of future alternatives, including failure, problems disrupt easy expectations.

This chapter argues that the psychological dynamics of creative or disintegrative ‘ego breakdown’ in the face of threatening problems and the flux of the world, can elucidate social responses to the problems of climate change. These climate problems present a collective (although not uniformly distributed) set of challenges to some habitual ego forms and culture complexes and are processed with difficulty within them. Ego breakdown and social breakdown are both processes that produce pain, disruption and massive uncertainty, invoking defence mechanisms. Both processes can be described in terms of an upsurge of unconscious forces and by a general cycle of problem and solution, or problem and avoidance. Both processes can lead to actions (useful or not) that seem self-destructive to others, as nothing guarantees that a proposed solution will work. Both processes invoke restraints on imagining that arise from a person or group’s existing patterns of habit and success, especially when previous success intensifies the problems

being faced.

Depth psychology

Use of terms like ‘ego’ and ‘imagining’ invokes depth psychology, in particular work descending from Carl Jung rather than Sigmund Freud. Jung proposed that the human ego (the ‘I’ or apparent centre of consciousness) is a habitual, necessary, but limited way of perceiving and experiencing the world and self. The ego is neither central to, nor foundational of, the wider Self which includes unconscious personal, social, cultural and biological factors. Most human functioning is unconscious (CW 7; §274-5, 303, 400-05). When the ego faces a problem that is unsolvable (or cannot be noticed) within its framework, it can be assailed by compensatory unconscious forces often manifesting as images in dreams (ibid. §278-95; Marshall 2008). As Gillespie points out elsewhere in this book, for Jung the unconscious is creative. Paying attention to images emerging from dreams, or other processes, can help in finding solutions, or adaptations, to problems. The unconscious has perceptions, wisdoms and imaginings unavailable to the ego, however it can challenge the ego and its habits and be perceived as destructive.

The general rule is that the more negative the conscious attitude is, and the more it resists, devalues, and is afraid [of the denied/unperceived], the more repulsive, aggressive, and frightening is the face which the dissociated content assumes (Jung CW13: §464).

Ideally therapy helps the client to attend to these unconscious, imagistic and apparently mythic processes and live with them, rather than according to the narrow (and no longer effective) perceptions and habits of their ego. Contemporary post-Jungians such as James Hillman (Hillman & Ventura 1992) or Andrew Samuels (2001), insist that therapy involves engaging with the collective world of politics and social problems, as these are often part of, or generative of, what is repressed.

As theories and symbols are important to perceptions and to the ego’s consciousness, this chapter, assumes what is known in the philosophy of science, as the ‘theory dependence of observation’ (Chalmers 1987: 22-37). In the ‘weak’ version of the argument used here, myths and theories direct our attention towards or away from events. The more

involvement with a theory, or the more it is emotionally implicated in both self and group identification, the less likely disconfirming events will be observed or imagined with, and the more confirmation is sought (Elias 1987). The theories become a set of existential truths, or 'myths' if you prefer. Departure from these truths can mark conflict, or finding and condemning opposition. Jungians call this ego defence 'shadow projection': locating and projecting 'evil' outside the person and their groups.

A man who is unconscious of himself acts in a blind, instinctive way and is in addition fooled by all the illusions that arise when he sees everything that he is not conscious of in himself coming to meet him from outside as projections upon his neighbour (CW 13: §391).

Inadequate theories do not protect people. They can be affected by events they misunderstand, or are unconscious of. If, after a life spent in Plato's cave, someone emerges into the light, they may get sunburn, even if lacking recognition of sunburn. Indeed the absence of a theory might prevent them noticing the symptoms until too late. If the person identified with a group theorising that sunburn demonstrated the light's favour, then 'ill effects' may increase. Group members may also perceive those who say sunburn is bad, or merely painful, as evil or misguided, especially if there is already conflict between the groups, or if the beliefs being challenged give some group members authority.

Thomas Singer calls this pattern of theory, perception and behaviour a 'cultural complex'. In it, people:

- [E]xpress themselves in powerful moods and repetitive behaviors [with highly charged emotional or affective reactivity...
- [A]ccumulate experiences that validate their point of view and create a storehouse of self-affirming... memories.... [and]
- [Replace] everyday ambiguity and uncertainty with fixed, often self-righteous attitudes to the world (Singer 2006: 203).

There is no reason to think that a person cannot be embedded in many cultural complexes, which are activated in different situations, but they may not be, or the different complexes may reinforce one another, as complexes seem to be more coherent than 'culture' in general. Cultural complexes tend to arise with cultural stress and difficult problems, or

with a history of conflict that binds groups together (in a shadow relation) with their perceived enemies (Singer 2006: 204). They are ‘normal’.

People in cultural complexes tend to claim everything important is already known; they encourage firm truths/myths; acceptable development remains within their conventional parameters, with different approaches implying an alliance with their enemies. Movement along familiar theoretical lines appears to boost members’ chances of successfully and securely guessing future outcomes, or explaining away bad predictions. With social stability this may not be problematic. However, the complexity and flux of the world often conflicts with group attempts to defend stabilities of ego and action. What groups attempt to order, will often resist that ordering. Unintended consequences generally remain unimagined. Ego and group rigidity also suppresses recognition of the suffering it brings about (in the self or in others), or sees that suffering as normal. It can be hypothesised that whether that ‘disorder’ is seen as useful information or not will decrease with a groups’ investment in the success of the cultural complex and its ordering theories, and the tendency of the group to punish divergence and fear its ‘shadow’.

Climate change provides an exemplary problem for cultural complexes, because it is systemic and unpredictable and, because once it is recognised, it generates an existential crisis. ‘Deniers’ of either climate change in general, or anthropogenic change in particular, know that others are attempting to change their modes of being and make previous behaviours impossible, while those acknowledging it can feel implicated in the problem, and that established forces are greedily sacrificing human existence itself. Cultural complexes are threatened, and the opposition furthers incompatibility between them.

These ideas are used to elucidate the imaginings of geoengineering technology as a solution to the problems of climate change within a ‘free-market cultural complex’. I am not suggesting that only ‘right-wingers’ have cultural complexes; they can affect any group. However this complex seems the most relevant for geoengineering. My description of the ‘free-market cultural complex’ is a caricature, a bold simplifying sketch, not pretending to be the reality, but hopefully helping analysis. Clearly differing groups will have non-identical complexes. However despite its differences, the political right in the US seems able to align neoliberals with libertarians, mainstream conservatives and fundamentalist Christians. These different groups may have some but not all of the

markers of the complex in common. In the ‘free-market culture complex’, personal liberty and virtue becomes equated with participation in ‘free markets’ of various degrees of idealism; everyone can and should forge their destiny alone. Failure to succeed is evidence of sin, incompetence or depravity, while economic privilege gained through markets is evidence of virtue (unless that person appears to question markets), and most costs of the State should be borne by the ‘sinful’. As markets are good, they and the privilege they generate must be defended and buttressed politically. All organisations should resemble businesses as this expresses the fundamental nature of existence. Technological innovation by business is usually good and produces acceptable change, while any systemic faults arise through State action or through people trying to help others (Ventura 2012; Harvey 2005). Industrial-capitalist modes of production and energy are good, as they have previously built success, and these notions become part of self-identity and group allegiance.

Geoengineering

Many definitions of geoengineering exist, but one of the most compact is “the deliberate large-scale manipulation of the planetary environment to counteract anthropogenic climate change” (Royal Society 2009: ix). The Royal Society, as is common, divides geoengineering into two categories: “solar radiation management (SRM) techniques that reflect a small percentage of the sun’s light and heat back into space” and “Carbon dioxide removal (CDR) techniques which remove CO₂ from the atmosphere”. Of the two they prefer CDR, because of difficulties managing risks, and maintaining ecological balances with SRM (ibid: ix-xi). SRM technologies include increasing sulphur dioxide in the upper atmosphere, suspending masses of water droplets in the atmosphere, painting mountains white, or placing large mirrors in space. CDR primarily includes Carbon Capture and Storage (CCS), which creates order by ‘hiding’ the disordering CO₂ underground, usually in abandoned oil or gas fields. However CDR could involve cultivating oceanic algal blooms (which may take carbon to the ocean depths on dying), or hoping for artificial photosynthesis. Another route, discussed by Walker in this book, involves bioengineering hyper-efficient algae or plants that turn CO₂ into biofuels which can be burnt with the CO₂ emissions being absorbed by the future growth of new algae in a perfect virtuous circle.

Scientists fear SRM is likely to produce large-scale unintended and disruptive climatic

effects through unexpected disruptions of weather systems, while CDR faces problems such as undetectable leakage, or loss of agricultural land to growing the absorbing organisms (White et al 2014; Keller et al 2014). Bioengineering faces the unpredictability of escaped and evolving organisms, especially organisms designed to multiply rapidly. With SRM, altering the climate beneficially in one place without altering it deleteriously in others could prove difficult. Such alterations might be construed as acts of war, as different countries compete for different results. If established, geoengineering could also be interrupted by economic collapse or warfare, producing accelerated climate change as the artificial suppressors were abandoned or destroyed. Once geoengineering has begun, it has to be both maintained *and* altered to handle unpredictable results, especially if CO₂ emissions continue to increase. Another recognised problem is ‘moral hazard’, with “an insidious negative feedback in which initial investments in geoengineering research could decrease efforts toward reducing emissions, thereby increasing [both] the incentives and need to pursue geoengineering” (Lempert & Prosnitz 2011: 8). Similarly, if successful geoengineering removes pressures for decreased greenhouse emissions, then emissions may increase.

Despite these problems, scientific, governmental and professional committees (such as the U.S. National Research Council’s Committee on Geological and Geotechnical Engineering (2006), President Obama’s science advisor John Holdren (Revkin 2009), the American Geophysical Union (2009), the Asilomar Conference (2010), the U.S. House Committee on Science and Technology (2010), the U.K House of Commons Science and Technology Committee (2010), the fifth IPCC report (2014)), all conclude that geoengineering research should be considered and possibly begun. Geoengineering is also supported by influential business people such as Bill Gates and Richard Branson. Gates has funded David Keith and Ken Caldeira well known scientific advocates of SRM research over several years, made geoengineering patent claims, and (along with a tar-sands-oil magnate) invested in a geoengineering company called Carbon Engineering (Vidal 2012). Branson funded a Royal Society report on SRM (Royal Society 2011). Geoengineering opens business opportunities. In June 2012 the ocean off the coast of Canada was seeded with iron to promote an algal bloom. Reports initially suggested instigation by a ‘rogue’ businessman, but his company later claimed support from the Canadian government (Lukacs 2012). Small scale SRM experiments have been reported in Russia (Mooney 2009). Fear of such unilateral action and its deleterious effects increases calls to start official research

immediately; increasing the possibility of some kind of geoengineering being implemented.

The main arguments for geoengineering depend on perceptions of social failure to reduce carbon emissions, and an aversion to challenging the forms of social organisation responsible for emissions. An ontology is implied in which it is simpler and less costly to control the natural world than to change society. Proponents claim the world is heading for climate crisis and *only* geoengineering will delay that event long enough for ‘us’ to reduce carbon emissions to an acceptable level (Royal Society 2009: 44-5; Asilomar 2010: 8). Atmospheric scientist Ken Caldeira argues (Caldeira et al. 2003) that the need for energy is so strong that attempts to cap emissions will fail. Advocates rarely consider questions of whose ‘need’, or whether the need is good. It is assumed/imagined that society has uniform interests, that energy use does not involve politics or victims, and that future development requires increasing amounts of greenhouse gas based energy. As society is perceived as ontologically obstructive or inherently fixed, geoengineering research must start before ‘we’ have to introduce full-scale geoengineering. Bart Gordon, Chairman of the U.S. House Committee on Science, Space and Technology opened the committee’s enquiry into geoengineering by arguing: “We must get ahead of geoengineering before it gets ahead of us, or worse, before we find ourselves in a climate emergency with inadequate information as to the full range of options” (Gordon 2009: 12). Geoengineering is framed as inevitable, further increasing chances of implementation. As Lempert and Prosnitz suggest geoengineering “has gained interest because limiting the magnitude of climate change by reducing greenhouse gas emissions presents a difficult policy challenge” (2011: 5). Yet ‘needs’ for energy are not fixed and can change. It is possible that renewable energy is becoming efficient and cheap enough to replace fossil fuels without the added risks of geoengineering. The IPCC chair estimates that investing “in renewables to the extent needed would cost only about 1% of global GDP annually” (Harvey 2011). Similarly the International Renewable Energy Agency claims that: “Renewable energy projects across the globe are now matching or outperforming fossil fuels, particularly when accounting for externalities like local pollution, environmental damage and ill health” (IRENA 2015). Geoengineering, however, appears to increase social externalities and hazards.

Testifying to the US House Committee, Caldeira uses ethics:

If we really believe that climate change has the potential to cause loss of life and suffering, and we believe that Solar Radiation Management approaches may have the potential to cost effectively reduce that loss of life and suffering, it could be immoral not to research and develop these options (2009: 8).

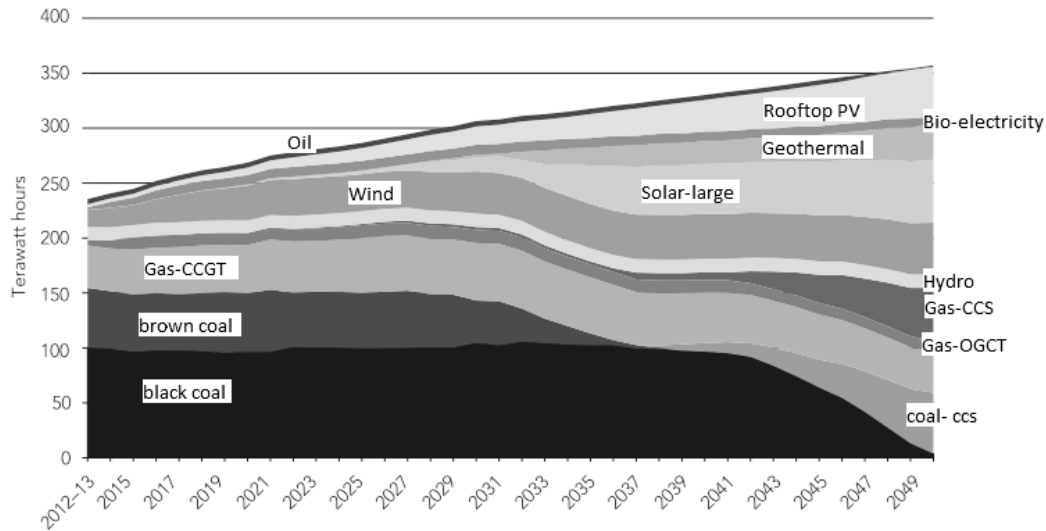
However, it could equally be immoral to research and develop geoengineering when there is a reasonable chance of destabilising ecologies, and increasing either loss of life or relegation to poverty, through expectable unintended climatic consequences.

The moral values of capitalism are also displayed in these geoengineering scenarios. American Enterprise Institute think-tank member, Lee Lane, testified to a US House Committee that SRM is needed “because, for many nations, a steep decline in greenhouse gas... emissions may well cost more than the perceived value of its benefits”. While recognising CDR techniques have fewer side effects and diminish problems of ocean acidification (which could kill coral reefs and other marine creatures, and arises from CO₂ absorption or from the sulphur particles which might be used for SRM), he states that “it is far from clear that, when taken together, these benefits would be worth anything even remotely near [the] \$5 trillion” CDR could cost (2009: 1). Within his free market cultural complex, Lane imagines that monetary cost is a universal overriding value, not a mode of observation which deletes other social processes, power and debates. Not every group may find cost-effectiveness, especially a cost-effectiveness that discounts potential ocean death, completely persuasive. Perhaps unsurprisingly the American Enterprise Institute describes itself as “a community of scholars and supporters committed to expanding liberty, increasing individual opportunity and strengthening free enterprise”, and as “non-partisan” (AEI 2015). It seems committed to maintaining the dominance of corporate capitalism with its patterns of energy use and sales. Its members support the Keystone pipeline for tar sands oil, and fracking, not seeing them as remotely problematic (Zycher 2014a; Goldberg 2014; Adesnik 2014; Perry 2014). Members also oppose campaigns encouraging people to stop investing in fossil fuels (Zycher 2014b) and seem largely hostile to renewable energy. Searching their website, I did not find any articles critical of Keystone or fracking, or giving support for solar or wind power. In this imagining, risk to established modes of profit and energy supply, appears to inhibit perception of problems.

Geoengineering in Australian politics

Geoengineering and other imagined technology are promoted as stabilisers for established cultural/economic ordering systems, particularly so in Australia. While the Australian Governments’ 2012 Energy White Paper does not mention SRM, it uses Australian treasury models describing how Australia will reduce its carbon emissions that are largely based upon imagined technology.

Figure 3.8: Australia’s electricity generation mix to 2050—AEMO medium demand scenario



(EWP 2012: 33)

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This diagram shows considerable imagined growth in coal and gas based carbon capture and storage (CCS), plus a growth in large-scale solar and geothermal energy, from a starting point of zero, or near zero, in the graphic’s present. This is despite the lack of long-term working CCS plants anywhere in the world, and few test sites. Major European projects like those run by electricity company Vattenfall have been abandoned (AFP 2014). A project at In Salah demonstrated leakage (White et al 2014). Projects in America are a few years old at most, and often used to push more oil from oil wells potentially breaking confining rock strata and increasing emissions, even according to the optimistic CCS Project Data Base (2014). Capture technology, while preferable to SRM, is a promissory imagining and seems an odd basis for official plans for the future.

Known technology which does diminish CO₂ emissions may be equally fictive in practice.

For example, CCGT (as marked in the above diagram) is Combined Cycle Gas Turbine energy generation where the exhaust of one engine forms the heat source for another. In 2012 TRUenergy promised to develop a 1000 megawatt gas-fired power station using CCGT technology. However, only months later, they announced that, in response to changed forecasts of energy demand, they would possibly convert the station to CCGT sometime in the future (Beale 2012). Another month later they asked for the government's Renewable Energy Targets to be reduced, as these targets' success in promoting renewable energy projects produced problems of investment and profitability for conventional suppliers (TRUenergy 2012). Successful organisations can perceive change to the conditions of success as threatening.

These were the technological imaginings during a Labor government that campaigned as committed to combatting climate change. It introduced a 'Carbon Price' to gain Green support for its second term, after neither of the two major parties won a clear victory. This was denounced furiously by the mainstream media and the then Opposition, who promised to repeal the 'big new tax'. The Government offered subsidies to coal miners to mitigate their potential loss while supporting coal exports (Chubb 2014: 213). Allegedly, it also suppressed "a report by CSIRO scientists questioning the cost and efficiency of clean coal technology... because it was not in the best interests of the coal industry" (Simons 2007).

When the 'conservative' side took government in 2013, they appeared more reluctant to curb greenhouse emissions, the Prime Minister saying "Coal is good for humanity, coal is good for prosperity, coal is an essential part of our economic future, here in Australia, and right around the world" (ABC 2014). Support for established economic powers and reduced government spending drove their imagining and resultant policy agenda. The new Environment Minister was enthusiastic about Carbon Capture and Reuse to preserve coal power and put carbon underground saying "we can make enormous strides, whether it's 30, 50 or 60 per cent in the reductions from our brown coal power stations" (Hunt 2014a), despite cuts in funding for the scientific body working on the project. His vagueness about levels of reduction, and reluctance to support research, seems symptomatic of a defensive imagining, it takes *possible* action without threatening the myths of the free market cultural complex.

According to the same minister, the "extreme left", opposing an enormous Indian owned

coal mine in Australia together with a massive port on the Great Barrier Reef, is now “against... electricity” and relieving poverty in India (Hunt 2014b). There is little evidence for this attribution, or that power stations in India supply poor people, or that climate change intensified by these emissions would not hurt them disproportionately, nor any mention of fears for the reef. The allegations seem to attempt to discredit or repress oppositional information about the effects of coal, coal mining, and transport without listening to it. Likewise coal is to be supported, with up to two billion dollars of taxpayer’s money going to subsidise the coal port in the Barrier Reef mentioned above, apparently without any cost-benefit analysis (Campbell 2015). Renewable energy, by contrast, has to find its way in ‘the market’, with cuts to government loan funds for renewable projects being proposed because renewables challenge the profits of old producers (RET Review 2014).

Imagining and the problem cycle

Geoengineering proposals presuppose that we (the ‘we’ is defined by the cultural complex in play), with the power and habit complexes ‘we’ have, with little attention to the potentially painful ecological unconscious/disorder of unintended effects occurring throughout the world. I therefore go on to suggest that support for geoengineering can be seen in terms of a problem cycle expressing patterns of ego breakdown and/or development in a cultural complex.

This chapter suggests that a person’s ego can be embedded in, and sustained by, a group-based cultural complex providing a set of social roles, power relations, and identifications, joined together with the habits and theories deployed by those groups to make sense of life, solve life problems, produce a ‘habit-able’ world, and locate enemies. While the person may (may or may not) share many cultural complexes depending on context, sometimes these complexes are mutually reinforcing and direct attention at a set of acceptable problems and solutions, and direct attention away from, or defend against, unacceptable problems and solutions. The complexes blend ideology, imagery, morality, rationality, fear, ontology and action.

Geoengineering seems bound up with the history of what I called the ‘free-market culture complex’. Support comes from some research suggesting that “rejection of climate science

is associated with an embrace of... free-market economics” (Lewandowsky et al 2013: 623) and hence maintenance of the complex. Alternate energies, phasing out of existing energies, or regulation of emissions are resisted, because they have the potential to not only challenge existing power corporations, but the connected ego-identities, ways of life and organisation of many people, identifying with, and hoping for, success. New energy sources may require new aid from taxpayers to survive in markets which is not as acceptable as the aid previously given to coal and oil. The threatened changes may not fit with ego stability, threaten government impingement on existential ‘liberty’ (as it is defined). From the perspective of those in the complex, all people challenging industrial power systems challenge a true moral order of being, threatening chaos. Similarly, some activists, in their opposing complexes, may see the overthrow of capitalism as *the* essential part of moral order and action, irrespective of how possible it might be, how much suffering it may cause, the possibilities of establishing yet another repressive order, or the cost of deferring practicable action against climate change. While such positions may not be the only alternatives, they can seek to polarise in shadow horror, with even more tendency to perceive disorder as arising from the other and needing suppression.

This is similar to the ways that people try to suppress any disapproved unconscious and disruptive psychological/bodily forces by shadow projection, so as to fit in with their social and moral order. As examples, we can take the attitudes of the Australian environment minister towards those who oppose a new mine and coal port, as discussed above, or refer to articles in which opposition to geoengineering is taken to show that people are not interested in solving climate change, but purely in moral condemnation (O’Neil 2010; Woudhuysen 2007). Lee Lane (2009: 7-8) states that the perturbations from SRM are small, when a major argument about geoengineering focuses on whether we can know this or not. Similarly while it might seem probable that geoengineering would need international co-ordination to avoid intensifying and cascading problems, Lane argues that regulation should be avoided in the interests of U.S. power, because with “too many players, the process could easily grind to a halt”, or because a regulatory regime adding to research costs may slow the pace of progress (Lane 2010; 2009: 9). Regulation is anathema to the free-market complex as it implies incursion into liberty, ‘the market’, or corporate power; the ontological basis of real order, security and success. Cultural complexes are reinforced by ignoring opposing arguments and information, and by morally condemning an imagined position attributed to that opposition.

Culture complexes exist in a wider field of power and communicative relations. The success of companies, particularly in oil and coal mining, allows them to support think-tanks that justify their positions, and threaten governments, as happened in Australia over a proposed mining tax; a campaign possibly responsible for a prime minister's overthrow (Davis 2011) and probably with the Carbon Tax. Successful institutions, group memberships, habits and egos tend to reinforce each other, actively providing defence against 'chaos' and neglected forces and support for those adhering to old ego theories. These groups may seek to destroy what they perceive as non-compatible actions as harbingers of chaos, as with the attacks on the Renewable Energy Targets. Pathways of acceptable action are firmly marked and reinforced by action. The more successful the ego or social institution's habits and its solutions have been, the more it tends to resist change and lacks knowledge of other techniques and imaginings. In contradistinction, new pathways are relatively fragile, with less disposable wealth and established connections; they are thus comparatively easy to wreck, ignore or turn into scapegoats, which makes their ideas and solutions even less visible to the established.

Complexes are also located in histories. While the history is much disputed, and involved in defending or establishing cultural complexes, mid-twentieth century socialism appeared to save capitalism from imagined threats of communist revolution by diminishing the relative power of capitalists; capitalism and communism became two poles of a mutually condemning set of culture complexes. In general, each saw itself as threatened by the other, with the potential for 'mutually assured disruption' and ongoing conflict. Irrespective of assertions of difference, the systems of industrial modernity (capitalist, communist and socialist) were built on fossil fuels, primarily coal and oil, with the costs of pollution not visible in the allowed theoretical framework. These systems, together with the habits, culture complexes and myths they generated became taken for granted and intertwined. After the fall of European communism, capitalist governments came strongly back into power, especially in the USA, the UK and Australia, and attempted to purge society of the checks and balances that had arisen to curb capitalism which they identified with communism. Ideal imagined free-market capitalism was declared a real possibility. 'Neoliberalism' famously marked 'the end of history' and was a major source of power, status and justification, becoming a good basis for complexes (Jones 2014).

However, the world was fluxing, partly because of the successes of industrial modernity. The spreading system produced so many greenhouse and other emissions that the planet could no longer absorb pollution indefinitely. The social and economic ordering systems produced too much disorder and some marginal people began to perceive the waste of success as having a deleterious effect. Ignored or unperceived problems (particularly when systemic) tend to spiral into overall existential crises so that people and institutions do not face just one breakdown, but a whole set of breakdowns. There is not only climate change, chemical poisoning, death of the ocean, loss of agricultural land, loss of forests, increasing intensity of storms, mass flooding and inundation, and problems such as peak phosphorous (in which land is permanently depleted of necessary nutrients), but there is also an unstable world economy, with changing geopolitical power relations. India and China pursue something resembling the industrial route of emissions and pollution, and self-proclaimed Islamic fighters destabilise previously secure regions while resisting forceful suppression. Recognition of global interconnectedness and difference can act as an excuse for non-action and retaining our habits; as ‘we’ cannot take responsibility for our emissions because other countries refuse to.

These problems have not been solvable in the free-market cultural complex, and some of the problems are not recognisable within the imagining generated by its habit frame. Previous modes of solution are enforced and the disruptive forces become more disruptive. Consequently, the cultural complex and habit is saved by selective denial of the problems, focusing on one possible aspect of the problem (the State, morals, ‘terrorism’ etc) or embrace of solutions like geoengineering which are likely to generate more problems. Events become overwhelming and overtly unpredictable. The unconscious (ecological, structural, ideological) emerges from outside the ego-structure of power and institution, from where it has been previously confined.

These emergent forces of the complex’s unconscious seem destructive, or ‘irrational’, within the complex. Imaginings ‘from below’ not only threaten as they challenge the complex’s ego habits and defences, they are also untried, and may not work; the threat to stability may be real. Attempts may be made more fiercely to suppress disorder, or dissenting imaginings, to retain order. Frequently both ‘sides’ perceive the other as trying to annihilate them, as can be seen in the violence and mutual negation of climate change debates.

The more the ego or institution sees itself under existential threat, such as by action on climate change, the more it is likely to retreat into habitual order, imaginings and perceptions, or rely on suppression. Attempts are made to and impose proper order on the flux, restricting action, possible theorisations and perceptions; attempts may be made to hide those problem and pains by: pushing them elsewhere, as when CO₂ is pushed underground, or when coal is sold to India and the Indians blamed for emissions. 'Research' to find desired results can be funded, or previously advantageous actions can be intensified, as when coal, shale-oil, or fracking become promoted as a solution to the problems fossil fuels may be causing. Change or challenge is actively resisted or ignored as a threat. However persisting with these previously successful and ingrained solutions intensifies the encroaching disorder, as Jung warned of repression, potentially leading to psychological and social disaster.

However, while Geoengineering acts within the free-market culture complex (by refusing to challenge social organisation, power and responsibility), it does allow the recognition of climate change and posit action. In this way, as an imagining, it is paradoxical and potentially constructive as well as obstructive. In depth psychology, disruption, and the repressed, if attended to in ways initially acceptable to the ego, rather than feared and re-suppressed, can allow insight and useful change. As Jung writes:

When, therefore, there are strong resistances, the conscious rapport with the patient must be carefully watched, and in certain cases his conscious attitude must be supported... one must go on supporting his conscious (or, as Freud thinks, 'repressive') attitude until the patient can let the 'repressed' contents rise up spontaneously (Jung CW16: §381).

Through this attention within the established framework there is a possibility of tapping into the creative unconscious and perceiving the new imaginings arising from *outside* the ego or complex. In this process we may find that complexes, which are currently held apart by closure and boundaries, can awkwardly work together lessening shadow projections. To the challenged groups, it opens the possibility of new processes and people becoming acceptable. Not all businesses necessarily support profit at all cost or fossil fuel usage, but opposition to capitalism by activists may push them into the free-market complex. If the

workings of the complex is seen as defensive rather than evil, perhaps opposing groups can provide their information in other ways. It might be that by positing a solution of technological mastery, the problem can be breached, as if solutions to a problem do not challenge important group myths, then the existence of the problem can be more readily accepted (Campbell & Kay 2014). There is no certainty here. Groups may defend by using the new imaginings as symbols of the old, and not attend to them, convinced they already understand them.

Egos, and social formations, adapt better if they can acknowledge their own shadow projections and accept disorder, instability and change as normal rather than to be suppressed. In Jungian terms, the ego cannot master the unconscious, or the body/ecology, but learns to live with them, recognise suffering, and learn from the images and imaginings arising from them. The institution, or ego, never dominates the Self or world as a whole.

Conclusions

This chapter suggests that imagining is fundamental to human orientation towards the future. People face, and avoid, problems through imagining; however imagining can be directed by cultural complexes which support or protect egos, their habits and social organisation. The intensity of the complexes often increases with their apparent success. These complexes connect social transformation and self-transformation through similar patterns of problem solving or problem avoidance.

Relevant characteristics of the free market culture complex, include: an identification with imagined free markets; identification with established players in the market; resistance to regulation of powerful market players; tendency not to seek out unintended consequences of market action; hope of success arising from free market virtue; and a need to seek 'socialist' enemies to fight. Identification with such a group gives a sense of being on the winning side. While the complex may have gained from the defeat of communism, it has not been effective at solving the problems arising afterwards. Under its dominance, problems have accumulated, and the only remedy from the complex is more of the same reassuring talk of more markets, more intensely. The problem cycle is currently stuck in crisis.

The structure of the problem cycle involves several intermingling stages. First, assuming there is a stage of success and a positive selection for ways of being, then a complex of behaviours, social institutions, understandings egos and defences arise. The world then fluxes and disrupts these ego and group habits and is resisted. Sometimes the theories deployed by successful groups prevent perception of the problems, or direct attention to other events, sometimes they actively resist recognition of problems, sometimes they project problems onto their shadow groups. The more that groups in a complex see the current state as an existential threat to their success or position, the more likely they are to embrace old solutions. However, old solutions may intensify the problems as they may generate those problems to begin with. The unconscious of the group emerges as ‘disordering’ personal imagery originating with: othered groups with different (perhaps equally unreal) solutions; ecological disruption; economic crisis; changes in political relations and so on. This unconscious can be attended to or ignored. If ignored, the prognosis is probably not good for the group and others; defence mechanisms like scapegoating, undirected aggression, shadow projection, self-injury and so forth, are likely to become common. If attended to, then new solutions can be found. These may fail, in which case the process continues, or they may succeed; in which case new groups may ride their success until the fluxes of the world disrupt the complexes of success yet again.

Geoengineering appears to preserve the free-market culture complex of habits, powers and certainties (even though it may disrupt them), while currently suppressing creative alternatives and aiming to discredit shadow groups. Geoengineering is an imagining that projects the disorder of current life onto nature while seeking to control it. It promises to bring nature back into human order while (unintendedly) threatening to destroy that order in the process. However, it at least allows recognition of fundamental problems of climate change and may represent a step toward fuller recognition. This chapter has suggested that more careful listening to the repressed (to the ‘others’ of the ego), or even working with ego defences, may help access better solutions and foster a more realistic mode of relating to the world and to ourselves within the cycle of problem and solution, as generated by our ways of being in and mythologising the world and its ecologies.

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