

Amnesty and Revolution

An Amateur's View of Life As It Stands

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Chapter I: Background

Media and Democracy

Many would argue that the use of powerful technology to elicit continued and diverse consumption is justifiable according to the precedent set by the past successes of growth economics. However, in many parts of the world today the dreams and aspirations which are co-opted to increase consumption and growth confer economic gains which provide little in terms of real utility to the consumer whilst posing a genuine threat to fundamental needs of people elsewhere. Just as a drug-user must consume greater quantities of a substance to pass a

threshold of pleasure which is augmented ever-higher, so the consumer whose volition is corrupted secures increasingly tenuous gains at great expense.

The traditional schedule of development which has been pursued by economically developed nations has involved capital being concentrated among few enough entities for economies of scale to be achieved (see also Chapter X: Third-World Development), and once the advantages of founding entities are crystallised, it is in the interests of the founding entity to preserve the conditions which made its dominance possible. Media corporations whose success depended on a certain establishment are therefore liable to promote the establishment in perpetuity, though the establishment may be anachronistic. In turn, because the opinions of the populace are greatly influenced by corporate media, the populace and the democratic system are liable to remain beholden to a reactionary establishment.

While consumers are made to seek a new perspective on current affairs with the same regularity as that which enables new publications or transmissions to be purveyed with optimum profitability, a world view which is restricted to changes in the immediate term is promulgated, and politicians—already liable to concentrate on achieving measurable success in an electoral cycle—are, by their accountability to the media, rendered even less inclined to engage with issues of more substantial concern. Instead of holding governments to account on behalf of the public's real interests as they are supposed to, the media holds the government accountable to the public's impulses. Media subservience to popular impulses flatters the populace into not accepting the existence of knowledge beyond what is presented to them in a format they are accustomed to and confident with.

Speech and the written word have enabled people to give expression to more elaborate elements of being and to rationalise more basic instincts, at least some of the time. However, the prevalence of banal metaphors and casual aphorisms has encouraged the simplification of human experience. More automatic modes of expression are concurrent with communication methods which are especially accommodating of crude rhetorical devices. As cultural activity is increasingly confined to the internet, the internet as a catalyst of linguistic simplification makes slight the difference between cultures made available for assimilation. However, while the opportunities for complex expression are thereby compromised, the desire for expression per se becomes more urgent owing to the lack of reciprocity in modern culture. The modicum of exhibitionism or local identity permissible where there is a local theatre production or an indigenous football team for instance, finds no equivalent where—in accordance with short-term economic imperatives—globalisation is considered expedient (see Chapter X). In this situation discourse is denuded of reciprocity and atomisation ensues. This is a dangerous phenomenon in a world where the demands of a growing population require a concerted effort in order to be met—just when it is most necessary to envisage the consequences of wastefulness, the producer demoralised by the automation of their trade seeks solace in profligacy while the adherent of popular culture seeks solace in narcissism. Although cathartic spending and digital culture respectively fulfil the modern objectives of generating economic wants and diminishing requirements for personal space; increasing commodification perpetuates the larger problem of resource depletion and the proliferation of interests, while the space-saving objective achieved by a virtual reality interface could be achieved more humanely and holistically with a lower birth rate in the developing world and

lower levels of consumption in the developed world as well as some return to localism (see Chapter X) and the attenuation or customisation of universalistic standards.

Technology

In many technologically advanced nations recent innovations have provided the population as a whole with a degree of convenience which is at variance with the proclivities selective pressures have imposed upon humanity. At the same time the intensive stimulation purveyed by modern communication systems effectively heralds a return to a more prehistoric state of mind, tending as it does to induce a state of excitability liable to prevent the diligent application of energy and prevent the ability to consider consequences outside of an immediate timeframe. With greater opportunities for physical ease the faculty of contemplation which is liberated while the corporeal being is occupied is not exercised, while those with the capacity to work autonomously are frustrated by the bureaucracy characterising working environments where economies of exorbitant scale serve demand which is in many cases contrived. Power tools and advanced manufacturing technology makes genuine occupational engagement elusive for would-be artisans and less-skilled labourers alike, while pervasive and distracting information systems render the intellectual element of being liable to corruption as a consequence of over-stimulation. Conversely, individuals more inclined to intellectual work find the functions of their minds supplanted by machinery, resulting in physical impulses being given rein beyond their optimum remit while the intellectual element of being languishes in a condition of idleness. The renunciation of human autonomy associated with excessive technology is as dehumanising as the excessively mortifying conditions technology has been utilised to create an escape from. It is therefore necessary both to revise the nature of mechanisation and to attenuate its overall presence. The optimum level of leisure facilitation has been surpassed in the economically developed world and it is necessary to achieve a balance between convenience and exertion.

The IQ index measures the capacity for or the propensity to exercise a kind of intelligence of which humans are subordinate to computers. If by exalting humanity in this regard those who are disinclined to specialised professional activity in a digital age are bred out of existence, the era of localism and simplicity which would ensue should certain environmental limits be breached would be harder for the human race to endure (see Chapter III: Schools). Also, while our heads collectively become larger in relation to our bodies, and birth by Caesarean section becomes increasingly expedient, there is likely to be less intimacy in the act of giving birth. This suggests greater atomisation which would be reinforced by the prevalence of one-child families and is a particularly dangerous phenomenon while the world population continues to grow and the proximity foisted upon us by globalisation carries the requirement of ever-more diplomacy.

New capabilities in the field of genetics enhance opportunities for gene editing or eugenics (see Chapter II: School Entry and Chapter V: The Role of Genetics) while the autonomous advancement of artificial intelligence (AI) and the augmentation of cognitive functionality by the assimilation of artificial devices risks creating disjointed special succession. Stage-managed evolution is always at risk of being crude and inhumane and that

which is under consideration at present is inimical to the preservation of our evolutionary heritage. While artificial intelligence is superior to human intelligence in some regards, it embraces none of the qualities which proceed from the hard-fought gains of our mammalian forbears. These would be forsaken with the emergence of a new kingdom of beings whose features can be envisioned by referring to the nature of existing technological entities and the trajectory of their advancement (see Chapter V: The Role of Genetics). It stands to reason that as AI entities become increasingly dominant, those humans most willing and able to source materials for their subsistence and advancement are likely to experience favour, at least until such time as the services of organic humans can be dispensed with entirely. This process has already begun; while computers only have a level of self-awareness which is equivalent to that of a small insect at present, their prevalence is such as to make them formidable like a biblical plague; but if as a species we could subjugate computers as one would insects on an insect farm (see Chapter VIII: Proposals), our humanity may yet be salvaged.

The notion that science and politics can be considered as separate entities ignores the fact that science is already deeply politicised (see Chapter VI: Genetic Engineering, for example). While political intervention should fall short of actually determining scientific outcomes, the objectives of research should be assessed before time, money and expectations are committed; the loss of some of the benefits which come from research for research's sake is a loss which must be borne.

Chapter II: Domestic Social Policy

Immigration

The exploitative activities of the British Empire and other elements of Britain's past most would identify as infamous are often cited in approval of an apologetic attitude towards British heritage, but despite the incursions Britain made into foreign lands, to a large extent Britain's prominence in the early years of the industrial era was a result of its natural resources and the ingenuity of select individuals. This mitigates the validity of casting the present generation as the inheritors of proceeds of slavery or other colonial exploits.

High levels of immigration may result in higher population growth and a greater level of cultural diversity than what can be accommodated in a short period of time, and with high levels of immigration it is possible that ethnic groups whose values are less concurrent with existing norms would face negative discrimination or that new insubstantial national identities would be extemporised to suppress variance. Although liberal immigration policy does allow formerly poor people to experience relative prosperity, an immigration policy which gives a greater priority to asylum seekers and refugees than to economic migrants would address the needs of more of the world's poor more equitably at the same time as encouraging investment in the cultivation of the host country's native workforce.

Furthermore, if diplomatic relations between the host nation and the asylum seekers' nation of origin were to be sufficiently advanced, the experience of cultural exchange imparted by citizens returning to their nation of origin could disseminate foreign influences more discretely than where the foreign influence is direct, or is via social media. In this way a more equitable distribution of wealth and sustainable development could be the result of whatever degree of globalisation is inevitable. In order to secure the refuge of those most afflicted by a humanitarian crisis, any crisis resulting in large displacements of people should be addressed by a co-ordinated international response. The criteria to decide a nation's responsibility for re-settlement could include their wealth, their proximity to the crisis and perhaps the degree to which they are accustomed to multiculturalism as well. In addition, there could be enhanced responsibility meted to any nation whose activities have contributed to the unease, wherever this can be discerned. Such spontaneous *willkommenskultur* (the culture of welcoming) as demonstrated by Germany in 2015 is of course preferable to re-settlement responsibilities being officially meted out, as this entails the possibility of diplomatic tension and the feeling among asylum seekers of being burdensome. Although Germany has found itself overwhelmed as the only EU nation to operate an open-door asylum policy, and is considering limiting the rights of asylum seekers, Germany nonetheless registered one million asylum seekers in 2015—one in three of which were from Syria.^{1 2}

The success of the service economy in domestic and foreign markets has undermined the viability of non-service industries, while the relative strength of more industrialised nations' currencies has resulted in manufactured goods being outsourced and in inward migration. With markets changing in this manner native workers are disadvantaged in several ways. Where work is performed by migrant workers, the wage expectation of the migrant worker will seem low to an employer paying in the currency of the host nation; while to the

migrant worker who will convert their wage into a weaker currency abroad and spent it there, the wage paid in the host country will seem high. Not only are migrant workers thus remunerated better in real terms but in less industrialised countries pervading media influences have been juxtaposed with difficult living conditions, allowing prospective migrant workers the opportunity to adapt to difficult conditions and apply their resilience to realising their aspirations, aspirations determined by the awe with which foreign cultures and their accompanying political systems are regarded. As well as changing economic conditions, in many wealthy countries the expectations and values purveyed indiscriminately at school have caused the skills associated with many occupations to be disfavoured, resulting in the aptitude integral to the continued dignity of less academically inclined individuals being disavowed (see ‘Schools’ later in this chapter). In order to reduce net migration to the UK it would be expedient to provide English people with the language skills necessary to move abroad. It is proposed that the provision of foreign language instruction in the UK is improved by providing incentives for new settlers to teach their native languages in the UK, and also by encouraging English language teachers abroad to return with the command of a foreign language so that they too can contribute to foreign language instruction at home.

Taking freedom of movement to the extreme would see lower-skilled native workers being forced to re-settle in less economically developed countries which would, as a result of having lost many of their most highly-skilled individuals to service-based economies in the developed world, exist as vassal states. In this situation, diversity—the objective of many proponents of free migration—would see no net increase, since any increase in ethnic diversity in any given place would be matched by a decrease in diversity in terms of economic class. Also, the environmental impact of new citizens desirous of sustaining aspects of their former lifestyle is likely to be substantial. People moving from warmer countries to cooler countries are likely to require more energy in terms of heating while people moving from cooler countries to warmer countries are likely to have additional energy requirements in the form of air conditioning. In addition there are the costs associated with importing familiar foodstuffs and of visiting friends and relatives residing in the migrant’s country of origin. The phased introduction of a zero net migration policy would be highly expedient in recognition of Britain’s cold climate and relatively scarce resource base because in the future—should there be a scarcity of resources and ill effects from climate change—the scale of foreign trade necessary to serve a large population may not be available. Also, whereas in many places struggling to maintain their infrastructure, the movement of people from cities to the provinces and rural areas would be sufficient to ensure access to food, many countries have such a high population density that international resettlement initiatives would need to be devised so that places with land shortages can export workers to where there are labour shortages. Although land and labour demand and supply does already determine migration trends to some degree, present day migration is facilitated by carbon-intensive fuel usage and largely serves a tertiary sector which is likely to prove unviable at its current size should global demand for non-essential services reduce (see Chapter VIII and Chapter X).

Entry-Level Employment Prospects

The high prevalence of unpaid internships and the low minimum wage for individuals on apprenticeship schemes is disadvantaging industry entrants who have modest financial support. At the same time the need for training and pre-employment work experience is increasing because the relatively high minimum wage (at least in international terms) has resulted in increased competition for entry-level jobs which in turn allows employers to discriminate against applicants with little or no relevant experience. It may therefore be necessary to further subsidise apprenticeship and internship schemes so as to increase the minimum wage for apprenticeship, at the same time as introducing one for internship schemes. The latter provision is particularly important for equitable social mobility.

It has been suggested that increasing the minimum wage would increase tax receipts and would therefore reduce the deficit and national debt, which would in turn make more money available for public services. However it is likely that with a substantial increase to the minimum wage, some businesses would migrate to where there is less employment regulation. Also, because many businesses which do remain would need to borrow money to pay newly inflated wages, increasing the minimum wage would ultimately provide an advantage to larger, better-established businesses because it is these who can secure better borrowing terms and outsource operations abroad. A substantial increase in the minimum wage would also encourage further immigration and population growth, which would then make further economic growth necessary to retain near to full employment levels. British wages would not be protected by simply preventing migration either. Because employers usually choose foreign workers on the basis of their likely productivity, in their absence it is likely there would be a reduction in productivity which would create a downward pressure on wages. This would herald a difficult period of adjustment during which time efforts would need to be made to make the native population more employable.

In economically developed countries at present decisions about the profile of future labour supply effectively devolve to the potentially misguided choices made by university applicants and other school leavers. Consequently migrant labour, being both readily available and emerging from countries with a more pragmatic educational base, is often better equipped to satisfy consumer demand than domestic industries which must to some degree conform to school leavers' vision of society (see also Chapter X: Sectoral Shift). While it may be viewed as illiberal to discourage the pursuit of more academic learning, the trade balance of more economically developed countries cannot be rectified in good faith until there is better communication between education and industry, and until increases in spending concurrent with the high regard to shown to citizens in their capacity as consumers is revised and instead equated with the onerous productivity requirements increased spending ultimately entails (see Chapter VIII: Managing Scarcity).

Clearly educational opportunities need to improve in developed countries but, in response to government cuts in tuition fees in the UK, many educational establishments have increased their fees to the maximum level. Until existing institutions can adapt in the necessary manner or new institutions are built which charge reasonable fees, many students will be prohibited from entering higher education prevented from keeping economically developed countries relevant.

Schools

GCSEs and traditional cognitive ability test (CAT) results have proved to be relatively good indicators of an individual's propensity to succeed economically; nevertheless, the contemporary notion of success against which CATs are calibrated is limited because obviously the pursuit of success engages only a limited range of faculties. Educators have a duty to look beyond technocratic measures of success and devise learning opportunities which enable students to think holistically in order for industry to reflect the range of man's needs and for society to reflect the whole range of man's proclivities. It cannot be assumed that all intellectual ability originates with activity discernible by CATs and even those forms of reasoning which CATs account for are not done justice to while CAT scores are formulated simply by aggregating scores across the different fields of measurement. Reasoning can take many forms and any one form can enable a student to arrive at a reasoned conclusion.

Those who would censor the measure because it seems inhumane perhaps do not recognise that if the measure is censored rather than effectively challenged, the crude methods used to impugn it may reinforce its credibility as a comprehensive value judgement. By virtue of race and ethnicity, people across the world are adapted to live in societies which operate in diverse ways; therefore success in a context which is remote from that according to which CATs are calibrated is not accounted for by the test. This is its limitation, but without the foregoing argument being available to vindicate low academic achievers, the threat of a sovereign measure of mind being posited as a unifying cause of both exam success and economic class is dealt with by exaggerating the causative link between social factors and exam success. If both exam success and CAT scores can be seen for what they are, the implications of acknowledging the significance of CATs would be less oppressive and there would be less need to erroneously denounce the causative link between exam success and economic class. Sensing the injustice of CAT measures, the political left have espoused grade inflation in order to overstate low academic attainment and artificially constrict the normal distribution, the 'bell curve', of CAT intelligence. The political right may then respond to this threat of censorship by exaggerating the significance of IQ tests in order to advance the prospects of more successful students, which in turn evokes more reactionary censorship from the left and the scapegoating of those concerned with a student's environment—teachers and parents and neighbourhoods. In order to suppress evidence for the existence of a predisposition for school success, the public may be led to believe that children must be saved their background in order to flourish. Should the false attribution of failure to environmental influences result in the lessening of the influence of a child's native environment on the development of their mind and character, the 'sub-C' student may be denuded of the support they need to fulfil their true vocation. It is even conceivable that parents and teachers exasperated by impossible expectations might actually project the mistreatment they experience onto children in their care and begin to behave cruelly to children, having not previously done so. Obviously some children *are* neglected or treated cruelly, but this issue must be isolated from the question of intellectual development. Some people such as Richard Titcombe, the author of 'Learning Matters', have proposed in the spirit of conciliation that the intelligence which is measured by CATs is to a large degree,

plastic. While this may be true, there is a danger that, should the prestige of CAT attainment not be moderated, lessons might increasingly take the form of solving abstract puzzles which though conducive to CAT success, may not have little other benefit.

The success of the Mossbourne Community Academy proves that a school's exam success depends more on the CAT scores of its cohort than on their perceived level of deprivation.^{3 4} By being allowed to select students evenly across four bands of CAT attainment, the school partook of a privilege normally reserved for academies. This not only discredited the left's argument that poor school performance was caused by - rather than related to - environmental conditions but it discredited the right's argument that the success of academies was due to the free-market principles they operated by.⁵ In the short-term, enabling all schools, not just academies, to exercise a banded admissions policy would be a useful defence against school league tables which allow parents to believe that their child's prospects would improve by virtue of becoming an accessory to the higher CAT cohort of more successful schools. Those schools denuded of higher CAT cohorts by academies who can in deprived areas secure a higher proportion of high-scoring students, are subjected to the self-fulfilling prophecy of free-market proponents because successful teachers will often migrate to where recognition for their services can be gained. In this way the initial advantages of academies are quickly crystallised and free-market intervention is responsible for the presence of complacency and excessive stress in privileged and under-privileged schools respectively, even though competition is supposed to neutralise privilege. Furthermore, the market function of comparing outcomes from competing providers has resulted in schools who are deemed to be under-performing being forced to meet five A*-C GCSE targets by 'teaching to the test' and by introducing insubstantial learning programmes—the 23 schools who demonstrated rates of five A*-C passes which improved by 30% or more between 2007 and 2010 were shown to have English Baccalaureate pass rates at one-third of the average among comparable schools. Also league table embarrassment has been addressed on the part of so-called failing schools by contriving five A*-C passes with vocational qualifications.^{6 7} Furthermore, the five A*-C threshold ensures that critical mass of teaching goes towards teaching students whose attainment is in the middle range. One effect of this might that a school would deem it necessary to withdraw Double Science from the GCSE curriculum, and in doing so prevent would-be scientists from attaining the qualification necessary to study Science at A-Level.

In effect many of the differences between the left and right are along the lines of a false dichotomy. Both parties are constrained by the electoral cycle to prioritise the convenience of supplying less technical professions with foreign labour over recognising the abilities of a class of people of which many are not politically engaged. The lack of provisions for sub-C students not only prevents them from finding dignity in an occupation, but the difficulty they experience in working in their best capacity prevents nations from adopting practices necessary to the nation's own continued autonomy. Sustainable steady-state economies will require a higher ratio of labour to capital because the reduction in energy consumption necessary for survival will entail disruptions resulting in more localised, less mechanised initiatives. In order to substantially improve the relationship between education and industry, it is necessary for schools to be reformed so that perhaps half of the secondary curriculum is structured in accordance with estimated long-term labour requirements. School

assessments should be conducted more discretely, and for the primary purpose of identifying learning needs, while the success of secondary schools and sixth-form colleges should be measured partly by directly consulting graduates of five or ten years as to the value of their experience and partly by objectively assessing the extent to which graduates have demonstrably benefited from their secondary qualifications over the same period of time.

Although students should not be committed to specialised learning agendas before academic or vocational inclinations can be prognosticated with sufficient reliability; where definite inclinations are strong and clear, the danger of ‘hedging’ and continuing with a general education is that skills which are consequently taught may be learned reluctantly and exist only as a preliminary to qualifications which might prove meaningless to the individual. Of course skills such as reading, writing and arithmetic are commonly applied, and should be considered as distinct from those skills which, in a formal capacity, are only cumulatively acquired by those who pursue related occupations. The national curriculum was established to uphold ‘enlightenment’ ideals but enlightenment learning doesn’t integrate well into an assessment schedule—it cannot be easily quantified and is not directly redeemable. Beyond a certain age, the benefit of the student learning skills unrelated to their eventual profession should be recognised as of diminished concrete significance. Although provisions should exist for peripheral learning for the purpose of personal enrichment, the place for this peripheral learning in the student’s learning schedule should be limited in proportion with the degree of certainty with which the student’s vocation can be anticipated—the greater the uncertainty, the more other elements should be introduced into their schedule. It is however proposed that the absence of formal learning agendas for certain subjects should be accompanied by recreational learning provisions for adults as well as children.

Both Conservative and Labour governments have increased the decision-making powers of central government and have diminished the powers of Local Education Authorities. This has led to crude and indiscriminate performance targets.⁸ Free-market provisions have helped to alleviate the bureaucratic burden, but have introduced corporate sponsors who can ignore the wisdom of established teachers in favour of implementing learning agendas which though spontaneous may be lacking in scope or may even exist simply to further corporate interests. Industry-specific interests may be planted within the curriculums of free schools and in this way students may be forced by sponsors to adhere to a programme of learning which is neither conducive to their best efforts nor the interests of the wider society.

As free schools are less constrained by the bias which is often entrenched in older institutions, they have the potential to encourage individuals who can impart a different perspective to students. However, while it is consistent with the spirit of free schools to encourage entrants to the profession who have been unwilling or unable to gain a formal teaching qualification, rigorous vocational training should be given to inexperienced teachers in the manner of the school centred initial teacher training programs where trainee teachers give actual lessons but are supervised by qualified teachers in doing so. Furthermore the appraisal process should be rigorous at the recruitment stage and the proportion of teachers in any institution without formal qualifications should be limited to some degree. Once reforms have been implemented to further accommodate variance, the only type of free school

necessary would be that which provides specialist learnings for students with a very obvious predisposition for a certain subject or activity.

Situations where a child with slower or less extensive social development is treated poorly by other children generally reveal something of the treatment the perpetrator has received (see also Chapter IV: Child Protection). While envy might determine the antagonist's actions to a large extent—the perpetrator may have prematurely surpassed the social practices the victim still indulges in prematurely—the perpetrator might also, observing the victim's less advanced social skills, prescribe treatment based on faith in their own social precocity: the treatment may be vindictive but also just as far minds yet to be imbued with executive functionality can be. Indeed, the opposite approach to meeting the needs of ostensibly dysfunctional children can be equally damaging. By ascribing difference to deviance and presuming this to be congenital rather than conditional, unusual children are not given the opportunity to attain a working knowledge of social customs which can help them protect their own integrity and ultimately make society more amenable to their individuality. There are vested interests in overstating the restrictions of people deemed abnormal, evident by how, without deliberation, responsibility is deferred from parents—grateful to be vindicated of blame—to the medical profession and the pharmaceutical industry, who are grateful for the custom.

As the qualities necessary to teach children with special educational needs are so different from those required of standard teachers, it is appropriate for prospective special educational needs teachers to be trained on a separate basis to normal teachers instead of being recruited from among existing mainstream teaching staff.

Learning Theories

Drilling and rote learning are prominent forms of instruction in schools at present but neither form develops cognitive processing. Not only does the superficial understanding which is cultivated where drilling and rote learning are used excessively compromise cognitive development, but the testing of it provides prospective employers with an unreliable appraisal of the student's capacity to understand concepts related to a vocation.

Both behaviourists and developmental theorists believe that the principle of cognitive conflict is essential to learning development; by resolving problems cognitive activity is facilitated and can be applied to problems which are in some way related and have a real application. However, developmental learning is preferable to behaviourism in the sense that the developmental theory stresses the importance of the student being made aware of the enquiry. Here, the student's reasoning is appealed to rather than circumvented and metacognition can be developed because the challenge which is posed to the student can be reasonably justified. Although behaviourism is intended to promote self-discipline, it discounts the importance of accountability to one's own thoughts. Deductive reasoning involves tracing the precedents of an enquiry and it is hard to facilitate if the enquiry is truncated by prompts and reprimands. However although developmental theory is more progressive than behaviourism, in some ways there is little difference between the two theories because both, by prescribing the form the challenges take, presume that an optimum

course of cognitive development can be objectively and universally known. As far as realisation and understanding can be staged, it is best achieved with a combination of metacognition, bridging and lateral thinking and by the collaborative evocation of language and linguistic connotations which help to extend ideas.

Those responsible for centralising control of education have made a more discrete approach to cognitive development more difficult to implement. Nevertheless, both developmental and behavioural schools of thought neglect to account for how the child, though themselves ignorant of much, are yet attuned to their own attitude and so stand to gain much from exploring the situations they encounter spontaneously. Care should be taken to not unduly bias young minds—to not operate upon them in a manner which may prove deleterious to proclivities which, though not easily discernible, may yet be integral to the fulfilment of the young person's purpose. The challenges posed by the developmental approach are more discrete than those of the behavioural method but still must be accompanied by autonomous exploration in order for more conscious and more impulsive cognition to be harmonised. Among the population there exists a wide spectrum on which there are those disposed to an all but purely intuitive appreciation of the world and those for whom methodical instruction is almost always more appropriate. It is therefore impossible to formulate a universally acceptable point of mediation between what has been coined by Daniel Kahneman in his book, 'Thinking, Fast and Slow', as system one and system two thinking. While it is perhaps unrealistic to expect that the teaching profession will be enabled to act more discretely in this regard very soon, some recognition of the importance of system one thinking—that which is fast and subconscious—as well as system two thinking—that which is more deliberate—would be preferable to none.⁹

School Entry

Just as with those who perpetrate errors of measurement among school-age children, those who argue that performance disparities among new school entrants amount to a comprehensive prognosis of success erroneously ascribe a universal value to assessments that measure only a certain type of aptitude. Although in some cases a disadvantage may be revealed which can be redressed by earlier institutionalisation, in many cases a child may suffer more as a result of being institutionalised at an earlier age. There is however, a danger of overestimating the extent to which the parents' characteristics prefigure the child's and the extent to which the parent's insight into the child's welfare is sovereign. When quantifying the transmission of likenesses between generations, the fraction of identity which is genetically inherited must account for the decoupling of parents' identities from their genetic constitution over time; that is, it should be acknowledged that the image one recognises of one's parents is distinct from their genetic legacy, and increasingly so. Trans-generational shared influences which increase similarities are reduced in times of rapid social change, such as now. Directional selection, of alleles and ideas, are likely to determine the course taken by society so at this time it would be improvident to look to forbears as a reliable indication of a child's eventual social position.

Public and Private Healthcare

Proponents of private healthcare argue that the introduction of the free market mechanism helps create incentives for healthcare professionals to exercise their duty of care—that where consumer choices determine the healthcare provision, there is an additional motivation for the duty of care to be exercised correctly.¹⁰ It is also argued that with clearer accountability to service users there is a reduction in bureaucracy.

The Private Finance Initiative (PFI) was developed by successive governments as a way of securing capital investment for public infrastructure, and the scheme enjoyed popularity in the 1990s before the notion that government debt could be forever paid by the proceeds of economic growth was seriously challenged by the global financial crash. It is possible that should similar opportunities for borrowing arise now, the opposition to them may be more coherent. Nonetheless, it is worth considering how PFI reforms were originally committed to in order to appraise the methods of politicians desirous of subjecting the provision of health care to market forces. In 1997 a legal guarantee was given to private consortia that regardless of changing needs or local demographics, PFI contracts would be unchanged. In this way complacency, the bane privatisation is supposed to ward against, was legislated for. Also, while valuation exercises allowed for optimism bias in public procurement they did not do so for private procurement.¹¹

The Health and Social Care Act introduced by the coalition government in 2012 abolished the Secretary of State's legal duty to provide a national health service throughout England, a duty which had been in force since 1948.¹² Before the Health and Social Care bill the success of the public sector model was demonstrable: only New Zealand was cheaper and only Switzerland—spending 35% more—had better levels of access, even though, out of twenty-seven EU nations, the UK had only the twenty-fourth highest rate of doctors per capita.¹³ Indeed, a 2013 poll showed that 73% of people consider the NHS to be the UK's greatest achievement. Despite this, one poll showed that only 41% of people believed the health service would exist as it does today in 2020.¹⁴

Customer service principles of corporate origin can destabilise provider-client relationships because as well as potentially compromising the sincerity of the concern, they may encourage a greater feeling of entitlement on the part of the client that may seem impertinent to the provider given the client's position of dependency. In any case the fulfilment of a market transaction may do little to elicit the spirit of giving, and bitterness can survive in the form of passive-aggression beyond the reach of conventional inspection procedures or even the patient's direct observation. While the historic movement away from the domestic arena as the primary healthcare setting can be celebrated because of the reduction of risk that comes with professional oversight, too-rational accountability over-sanitises healthcare and denudes it of humanity; the public interest is not served by attempting to eliminate human error by any means possible.

As a development of the concept of consumer sovereignty, the introduction of consumer choice into the patient pathway is potentially very dangerous. Whereas in the marketplace the purchasing power of an individual is determined by the extent of their economic activity, the consumer choice which is championed on behalf of the public at large in their role as patients will not always be reconcilable with their taxable earnings—their

personal contribution to the NHS. As this is unlikely to have escaped the notice of proponents of NHS marketisation, it is likely that with transference of provisions from the public to the private realm, choice will be transferred from the consumer to the provider to some degree. The framework is already being established for this sort of shift, as the distinction is drawn between profitable and non-profitable elements of health care. As a result of Section 75 of the Health and Social Care Bill, Clinical Commissioning Groups are now required to put services out to competitive tender and health authorities are given a budget to buy from providers on behalf of the local population. As payments are given in accordance with caseloads, those services and patients who are considered the best value are likely to be preferred by private providers, and as the NHS is left providing relatively expensive services without additional resources to manage them, questions may be asked by the NHS as well as by private service providers about the 'calibre' of service users they are left to manage. Already 'self-funded' patients are able to procure services at the level of NHS costs within general hospitals and it is likely that as budgetary controls become stricter, a greater range services will be available to self-funded patients. The introduction of consumer choice not only encourages criticism of the discrete professional judgements which are intrinsic to the ethos of the organisation but could also be manipulated to punish those who, 'for all their demands', pay less taxes. However, in defence of privatisation, the notion of universally free healthcare provision is inconsistent with public attitudes to welfare in general. A state which bestows upon itself responsibility for providing absolute recompense for misfortune would be considered impertinent if it were other forms of inequality which were addressed: it is not politically correct to espouse the subversion of wealth and responsibility which devolves by virtue of our capitalist paradigm; therefore it is not consistent for physical vitality to be legislated for entirely. A compromise between left-wing and right-wing tendencies could be achieved by keeping the health service in the public sector whilst having simple income-based means-testing at the point of access for some of the cost of treatment. Also, those people with minor ailments could consult naturopaths who having been integrated into the NHS, could, because of the time naturopaths typically invest in considering the context of an individual's symptoms, help individuals to take responsibility for their own healthcare to a greater degree, and help to reduce illness in society in the long term.

Recently, Clinical Commissioning Groups (CCGs) have been established to replace Primary Care Trusts and organise the provision of care across the UK. However, although GPs have nominal control over the commissioning of services and are ostensibly accountable, the budget available to each CCG is determined by NHS England. It is therefore likely that GPs, who may already be disadvantaged by their lack of administrative expertise, are likely to be blamed for restrictions beyond their control if and when it proves impossible to provide efficient services with diminished resources. But though they may be best placed to criticise budgetary controls, they are compromised by their own complicity, bound as they are to promote the initiatives of CCGs as described in Section 75 of the Health and Social Care Act. Accordingly, a recent poll revealed that six out of ten GPs had considered early retirement and almost half had reported their morale as being 'low' or 'very low'.¹⁵ In August 2014 it was revealed that some consultancy firms and a prominent health insurance company bidding for NHS contracts had been receiving regular briefings from senior health service managers charged with promoting competition among its providers.¹⁶ With the privatisation of

Commissioning Support Units, the professional covenant of GPs is at risk of being reduced to explicit contracts and the expectation of promoting the health products of their corporate sponsors, if necessary against their professional judgment. See also Chapter VI: The Pharmaceutical Industry.

There is substantial evidence of private sector influence within the public sector. More than a third of GPs on the boards of CCGs have a financial interest in a for-profit service provider and in October 2014 it was revealed that research by Unite had found private companies with links to twenty-four Conservative MPs and peers had won £1.5bn of NHS contracts in the preceding two years, while research by Social Investigations found that 225 parliamentarians have recent or present financial private healthcare connections.^{17 18 19} Once the sporadic awarding of contracts to private companies was underway, fragmentation of the NHS followed. The NHS is a massive institution and so its role as a public service depends upon its integrity. If for instance an accident and emergency centre is closed down and the staff are duly relocated, considerable expense is required to reconfigure staff profiles. In the meantime more mistakes are liable to occur, which can then be presented by proponents of private healthcare as evidence of the need to introduce the accountability based on competition which is advocated, even though the root cause of the mistakes may have been fragmentation resulting from privatisation. Further oversights are likely to ensue and further blame directed at the NHS as it is left with those services which are deemed worse ‘value’ for the budget allotted to them. Meanwhile, the population is growing rapidly and the rising costs of elderly care are not being met by commensurate budget increases.

Even though they may not be best placed to provide care, it is multinational companies rather than charities and social enterprises which have the expertise to win contracts and the resources to sustain losses at the outset. Private companies also have the advantage over the NHS that if it transpires that a service cannot be maintained, the private provider is able to withdraw, whereas the NHS is unable to dispense with inconvenient PFI contracts.²⁰ And though a private provider may fail to provide an adequate service in one setting, purchasers may be prohibited from discriminating against them where the provision for other services is concerned.²¹ In 2003, a prominent policy advisor to the former health secretary observed the similarity between UK trusts set up to buy healthcare from doctors and hospitals, and managed care organisations like UnitedHealth in the USA.²² In May 2013 it was revealed that private health firms could pay £140 to identify and access the health records of potentially millions of clients, in accordance with a new NHS arrangement.²³ With closer union between the USA and Europe it is likely that the influence of private health companies will increase. If the Transatlantic Trade and Investment Partnership is passed, the associated Investor-State Dispute Settlement courts may make it impossible for future governments to compromise the interests of private healthcare providers (see Chapter IX: The Transatlantic Trade and Investment Partnership).

The inscrutability of private providers’ actions is upheld in accordance with the ‘commercial confidentiality’ exemption from the Freedom of Information Act 2000 (see also Chapter VI: The Pharmaceutical Industry).²⁴ This exemption permits private providers to refuse to give information about public spending paid to private companies. Even where it is possible for the public to trace NHS reforms, the process of appeal has been greatly attenuated because part of the reform schedule has involved the abolition of statutory bodies

which facilitated protest. Community Health Councils contained local activists and experts and worked to register their views through representations on the boards of health authorities, but these have been replaced by a succession of obscure new bodies. However, the Health and Social Care bill does recognise the rights of Health and Wellbeing Boards which are run by local councils and can be used as campaigning platforms.

Although the overall regulator of the NHS, Monitor, is able to vet private companies bidding for contracts, neither they nor the Care Quality Commission publishes the list, and companies whose contracts have a value of less than £10m are not required to be licensed at all.²⁵ Also, where quality control is exercised by agencies which operate remotely from the institutions they oversee, such as in private healthcare institutions, they are liable—in the absence of a regime of close and informed supervision—to require oversight which is expensive and which may operate by a largely deleterious culture of suspicion and blame. The concept of shared risk is replaced by that of consumer sovereignty, and budgetary controls are difficult to formulate with accuracy where those responsible for devising and implementing budgets don't work closely with the institutions in receipt of funding. Also, making sporadic private healthcare providers accountable for the disposal of state resources is expensive—the administration costs as a proportion of total health spending in 1979 pre-health market were only 5% but by 2010 the figure was 14%; in the USA it is estimated that administration costs comprise 30% of healthcare spending.²⁶ In the UK there are significant bureaucratic costs associated with the new commissioning structure, both because of the extra resources required to generate complex contractual arrangements and because there will be a requirement for an advisory body to assist with administrative duties many members of CCGs are not trained to provide. A 2013 study revealed that NHS doctors and nurses spend up to ten hours per week on bureaucracy.²⁷ Furthermore, as the volume of financial transactions increases, there is an increased possibility of fraud as well as the potential for unnecessary demand to be generated at the expense of the health budget. For instance, having won a contract to provide audiology services, Specsavers launched an advertising campaign to encourage members of the public to request their GP to refer them to Specsavers for 'free' tests and hearing aids.²⁸

If in terms of general governance more functions were devolved to the local level, the management and execution of local services would be interesting enough so that the case for private enterprise wouldn't need to be contrived just to satisfy the creative impulses of entrepreneurs. A good compromise would be if, simultaneous to the invigoration of public sector outposts, workers from the private sector could be accommodated at a level of seniority providing them with a level of authority roughly equivalent to that which they have been accustomed to exercising. Any sense among public sector workers of having been encroached upon would be greatly diminished by the empowerment devolution would bring to their roles.

Chapter III: Domestic Economic policy

Productivity

While in the absence of economic growth there may be less capital for investment, because less innovation is squandered in the product diversification which accompanies the elicitation of consumption, the true value of economic output would not decline in proportion with a decline in economic growth. Also, although a reduction in formal working hours may be necessary to ensure near-full employment in times of no economic growth, with some increase in productivity, reductions to consumer utility would be negated or at least well attenuated (see also Chapter X: Proposals). However, while a reasonable level of income is important it is also important for people to have dignity and fulfilment in their work, which can be imperilled where there is greater automation; therefore in many cases sustaining wages at precisely the same level should not be the priority.

By facilitating more informal economic activity, near to full employment could be maintained without precipitous reductions to working hours. An increase in healthcare undertaken by a patient's friends and family would have the benefit of reducing the cost of domiciliary care whilst not being attended by the same level of risk as similar arrangements in the past when there wasn't such an extensive public healthcare system to provide additional support to domestic carers. Similarly, if more parents remained at home to look after their children at least part of the time, children would be looked after better, in many cases, than at infant schooling institutions (see Chapter II: School Entry), while the number of dual-income families for the economy to support would be reduced.

The Welfare State

While dynamic changes in the form of de-industrialisation and globalisation have created a need for a greater degree of public risk sharing, because of the increases to the mobility of capital concurrent with globalisation, nation states are under increasing pressure to lower taxes and lower government spending. Should the labour force not respond to labour market dislocations by adopting a commensurate level of mobility, the burden of corporate taxes is likely to fall most heavily on a labour force which, if immobile, will be inelastic in its supply (see 'Taxation' later in this chapter). The welfare state is under increasing pressure because of the increase in redundancies which comes with fast-changing industrial profiles and because of the breakdown of family and social ties which is a consequence of geographical mobility. In Europe as a whole the response has been positive: welfare spending as a proportion of GDP has increased from between 3.1% and 17.4% in 1970 but to between 16.5% and 29.2% by 2001.^{1 2} In the presence of large corporations and monopolistic industries which tend to cause inequalities of wealth, governments in Europe have recognised that their legitimacy depends upon the intervention of state bureaucracies into the market.

Between 1948 and 2013 labour productivity improved by on average 1.5% per year in the service industry and 2.8% per year in the manufacturing industry.³ In respect of attitudes

towards employment and unemployment the automation which has facilitated labour productivity gains is likely to have two contrasting effects. Workers may recognise that less work is available so extend sympathy to the unemployed, but equally the monotonous and unrewarding nature of automated work may lead functionaries to begrudge the unemployed their non-participation. Workers might consider that the purpose and dignity which comes from meaningful employment is a reward in itself, but with increases to the boredom arising from automation the opportunity cost of employment is greater. Therefore the ease the unemployed population are assumed to enjoy may be coveted especially if their income is comparable to that of working people. Entrance to the labour market may incur a high 'participation tax rate' which represents the small real-terms gain, in many places, of taking minimum wage work over unemployment allowances. However, although it may be deduced from the participation tax rate as well as the increasing monotony of less-skilled labour that the unemployed population should be coerced into work, it is important to consider that the participation tax rate does not account for the fact that though small in real terms, the difference between the minimum wage and the subsistence-level unemployment income reflects pure disposable income—a segment of personal income which represents unadulterated purchasing power. Also, because a minimum wage policy reduces the demand for low-paid labour the minimum wage necessitates a higher unemployment level; the augmented wage that unskilled and low-paid workers receive depends upon the existence of an unemployed population. There is then the question of whether, market forces aside, full employment is desirable. As discussed, there are distinct advantages and disadvantages to minimum wage work and differing values among the eligible population will determine the importance of these advantages and disadvantages. Someone who is more concerned with being occupied in a clearly-defined role and who prioritises disposable income or social status over the preservation of their autonomy is likely to choose to be in employment, and will probably be more effective in their role than someone with very different values. Also, it is likely that anyone who opts for life at the subsistence level, especially the bedsit level of subsistence offered by the UK government today, and who is not taking drugs, probably has a good enough grounds for their benefit claim.

'De-commodification' involves the maintenance of a livelihood without reliance on the market. Family labour, for instance, is a de-commodified equivalent of wage labour and is extant in less developed countries today as it has been in the West in the past. In some social democratic regimes where the power of global markets is being addressed by post-materialist values, de-commodification is experiencing resurgence.⁴ Recognising that there are limits to both economic growth and to sectoral shift, individuals could be employed to work in non-skilled tertiary roles for part of the time and in skilled roles which are perhaps remunerated at a rate below the minimum wage for the remainder. In this way informal workers can help shore up economic self-sufficiency in primary and secondary industries. Hinrichs et al. state

'voluntary non-participation in the labour market becomes a feasible and publicly recognised option, the exercise of which might even lead to the resurrection of communal forms of useful activity within civilian activity which would enable individuals to escape the dictates of both the private household and the labour market'.⁵

Because governments in the West have become increasingly centralised at the national level, the variation between constituencies in any given region is generally so minimal that there is little need for constitutive representation. Under the first past the post system practiced in the USA, the UK, Canada and New Zealand—where constituencies have broadly similar voting patterns, the loss of local representation in parliament is a lesser concern than the loss of diversity associated with a first past the post system, given the limited opportunity local MPs have to represent their constituencies in parliament anyway. A first past the post electoral system which allows little or no political representation for progressive elements potentially allows these elements to be victimised by the state apparatus (see Chapter XII). It is therefore important to give a voice to those who find themselves to be particularly incongruous with the trend of commodification. Also, the fact that the minority for whom mass culture and commodification is particularly repellent are not—unlike aristocrats in the past—claiming much of material value, represents a better deal for the working classes than in days of yore, and of course a better deal than the alternative for the marginalised population who typically become involved in a vicious cycle in which—by virtue of their inclination for autonomy—they fail to assimilate employment skills, but in thus failing to do so are destined to be engaged in employment which permits little or no autonomy. In order to promote this new de-commodified activity as a kind of subsidy for the preservation of autonomy, it would be important to continue ascribing value to the achievements of those who opt to take formal low-paid work. One simple way in which Britain could retain its inducements towards work and personal responsibility, whilst at the same time giving a subsistence guarantee, would be to implement individual welfare accounts (IWAs), which would allow individuals to insure themselves in the event of being made unemployed. These could also be made to incorporate maternity payments as well as sickness benefit to some degree. Should the individual's insurance expire, there could be subsistence level provision which would however be offset against national insurance contributions for the purpose of calculating pension entitlements.

Convergence to an unconditional subsistence-level entitlement for claimants of jobseekers' allowance over a number of years simultaneous to provisions for re-training people of any working age would represent a fair level of pressure on unemployed people to accept formal work. By making the premium level of support conditional upon compliance with the offer of suitable opportunities, there would remain some degree of deterrent against elective non-participation in the labour market. While the rate of decline in payments should be adjusted according to the level of suitable work opportunities available, in times of economic crisis the magnitude and duration of premium payments should be slightly attenuated. However, if it is deemed that a reduction of the standard working week is expedient it would be fair to extend more tax credit entitlement to part-time workers. In addition to a fixed minimum level of aggregate welfare entitlement it is proposed that discretionary payments are issued in accordance with reasonable poverty avoidance criteria wherever appropriate, and that people who have been judged to have long-term disabilities continue to receive an additional allowance in acknowledgement of their diminished long-term earning potential. The intervals at which disabled individuals are means-tested should be set according to the likely prognosis of their condition as determined by a medical professional familiar with the claimant's condition and medical history. While it is proposed

that subsistence-level provisions would normally be a fixed percentage of the average regional income for the type of household occupied, it is urged that homeless people should still be considered eligible to receive benefit, perhaps in the form of tokens for food and basic commodities.

In the UK, the attitudes towards benefit recipients has changed markedly in recent years. In 1992, 79% of the UK population were in favour of a maximalist approach to the welfare state and 73% said it was 'not costly'.⁶ Today however, despite levels of inequality which have been broadly sustained since the surge in inequality in the 1980s, opinions have changed drastically against the poorest in society.⁷ In a YouGov poll conducted in October 2014, 56% of respondents were in favour of real-terms reductions to unemployment benefits, and in June 2015 almost half of those respondents who expressed a preference voted in favour of a further £12 billion of welfare retrenchment in addition to the £15 billion which was imposed in the last parliament.^{8 9}

As a welfare state on the liberal model, the UK's welfare regime in which 'social reform has been severely circumscribed by traditional, liberal work-ethic norms' is unique in Europe.¹⁰ But support for the poor and needy has until fairly recently been present in the UK and the absence of similar welfare retrenchment in other European countries suggests that reduced welfare spending is not a necessary and inevitable consequence of an economic crisis. By discriminating against minority groups in general, the first past the post parliamentary system certainly helps facilitate the scapegoating of economic minority groups (at least those without the ability to lobby) but there was a very deliberate effort by the coalition government of 2010-2015 to rally public opinion behind welfare retrenchment. By the way of some vindication, perhaps the invective of the Conservative-led government was pitched at such a high level in anticipation of the Labour party taking the equal and opposite view. Upon experiencing no substantial opposition, perhaps the Conservative-led government in merely took the opportunity to revel in their new-found freedom. In 2014 the Work and Pensions Secretary, Iain Duncan-Smith, described the Council of Europe's claim that the UK's jobseeker's allowance, incapacity benefit and state pension provisions put the UK in breach of the European Social Charter as 'lunacy'.¹¹ Of course, not all of the ill-feeling against benefit-claimants can be attributed to the coalition government—as Offe writes, 'there is a matrix of social power according to which social classes, collective actors and other social categories have a greater chance of shaping and re-shaping political reality, opening or closing the political agenda, than others'.¹²

Although the European Monetary Union was created to increase competition between countries, the political union and solidarity among the Eurozone countries provides some resistance against, or at least a counterweight to, the drives for deregulation. For instance, the European Commission has advocated recognition of the strong contribution of employment and adequate social protection to sustainable development.¹³ The absence of this kind of counterweight against trade liberalisation in the UK in recent years is remarkable, but this is not only due to the ideological opposition to political union among the political class, it is also because of the UK's traditional ties with the USA—a country which is more strongly in favour of trade liberalisation. Another factor is that disillusionment with the two or three establishment parties has resulted in low voting among the younger generation which in turn

reinforces the disillusionment felt as governments come to power that are less capable of adapting to changing times and providing the necessary counterweight against market forces.

The Stability and Growth Pact was created to provide a mechanism to enforce the criteria of the Maastricht Treaty which required the budget deficits of Eurozone states would not exceed 3% for more than three years, and that the total amount of government debt would not exceed 60%.¹⁴ In the UK, the Labour government's public spending, which between 2000/01 and 2009/10 rose from 34.5% to 47.7% of GDP, was justified at the time on the basis that it moved the UK away from a US model of spending and closer towards a European model of spending; nevertheless because government income did not increase commensurately, by 2010 the UK's budget deficit was the highest in Europe at 10.4% of GDP.^{15 16} However, as the case of Greece illustrates (see Chapter X: International Organisations), it is possible that Eurozone membership would not have prevented the UK's budget deficit from reaching such an unsustainable level. The debt accrued by the Labour government in the UK has been defended on the grounds that it is paid back at low interest-rates, but in view of the generally higher risk of default as debt accumulates and the specifically higher risk in view of the financial crash of 2008, maintaining national debt at a high level would be likely to result in government bonds being downgraded which would cause the interest payments on government debt to increase. However, while the ambition to eliminate the budget deficit and to pay off government debt is commendable, it is important that the full co-operation of government departments is secured in order to make the retrenchment more equitable. With ever more complex infrastructures, and with central government taking a larger role in determining budgets, it is increasingly difficult for central government to identify how public sector savings can be made discretely. Information gained by consulting public sector employees as to how money could be spent more effectively in their departments could be compiled and used to inform budget initiatives on a local and national level. However this is difficult because public sector retrenchment involves redundancies, salary freezes and pension reductions, all of which are likely to make the public sector less inclined to co-operate. This is not to say objections of public sector workers are not trifling—between 2010 and 2014 people employed in the public sector as a proportion of the total workforce shrank from 21.6% to 17.6%.¹⁷ Although the reduction of the additional tax rate from 50% to 45% is likely to have helped reduce tax distortions (see 'Taxation' later in this chapter), the policy would have had a strong symbolic value which is likely to have contributed to a disinclination to hearken to the rallying call of being 'all in this together'—a slogan of the current prime minister.

The PCS union has revealed that as part of the coalition government's scheme to reduce the cost of the welfare state, jobcentre plus managers threatened staff with performance reviews if they failed to instigate or approve enough sanctions.¹⁸ This approach could potentially result in a perverse situation where a low level of normal sanctioning activity is identified as problematic though it is likely due to the high collective past fidelity of claimants. The Work and Pensions Secretary has since announced plans to introduce a trial for an early warning system that would allow claimants fourteen days to explain their non-compliance.¹⁹ Given that in 2014 58% of people challenging sanctions had sanctions overturned, this doesn't represent a massive shift in policy but it certainly represents acknowledgement that the current welfare regime is overly punitive. Arbitrary targets are

always prone to the weakness that when the target is conceived it is not possible to know how successful the measures to achieve the target will be and therefore to ascertain what costs will be borne at the last to achieve it; it is likely that were the costs which result from desperate measures known at the outset, the target would be moderated or appropriate contingencies introduced to offset ill-effects. Similar to a target is a ‘cap’, such as that which was applied to housing benefit so that no household could claim more than the average household income of £26,000.²⁰ While this policy would appear to have some neatness to it, for very large households, especially those in London, the cap would make the actual replacement rate—the value of the benefit in relation to the value of the income of a working household of equivalent size—very low indeed, and put many families far below the relative poverty threshold. This is because the cap is set with reference to average household income rather than to households of comparable size. Furthermore, even should the adults in the household wish to work, there may be no affordable child-care available and even if the family were to accept the need to move to a lower-rent area as desired, reductions to help in the form of crisis loans could easily precipitate a serious crisis. The Chancellor of the Exchequer has now announced that the cap will be reduced further, to £23,000 in London and to £20,000 in the rest of the country.²¹

The argument goes that the parents shouldn’t have had so many children without knowing that they could support them with an earned income, but that decision – as far as it can be a matter for deliberation – is likely to have been made at the time of a government who didn’t discourage large families living on benefits; therefore it is unfair to punish the parents for it, and even more unfair to punish the children. Furthermore, the reason for the increase in the cost of housing benefit from £3 billion in 2010 to a projected £5.5 billion in 2018—by which the case for the benefit cap has arisen—is largely due to the cost of rents pursuant to rising house prices that successive governments have contributed to by allowing the population to grow rapidly through migration without building a sufficient number of houses. Indeed the government has welcomed the additional revenues brought in the form of stamp duty and economic growth.²² To diminish house price inflation in the UK it is suggested that council houses are built, net migration is reduced and the ‘help to buy’ scheme is abolished. In many third-world countries, the problem of urban migration has been addressed by the building of spontaneous shelters.²³ Here governments have given informal consent for the occupation of unoccupied properties and areas of wasteland, and on designated sites have provided necessary amenities. Spontaneous shelter building allows for more scope in the provision of accommodation because self-build initiatives can adapt to the given land relief, be custom-built to the needs of the resident and can use cheaper and more sustainable materials. The emergence of self-build initiatives in the UK would also provide interesting new training and employment opportunities for the younger generation.

In general there has been an emotiveness to the Conservative Party’s approach to retrenchment that suggests a belief that those who benefitted from Labour’s policies are responsible for them, and for this reason are not deserving of more modest or at least incremental reductions that would achieve almost as much for the taxpayer whilst preventing avoidable suffering for many poor people. The number of people claiming Disability Living Allowance (DLA) grew from £2.4 billion to £3.3 billion in the ten years to 2012, giving many recipients a long period of time to grow accustomed to it, but in replacing DLA with

Personal Independence Payments, it is estimated that the allowance will be lost to 280,000 people in most need.^{24 25} Similarly, recipients of Employment Support Allowances (ESA) have been earmarked for a retrenchment of £3 billion before 2018 which equates to the withdrawal of 600,000 people from the benefit.²⁶ Not only is this likely to cause significant distress even where it is possible for disabled persons to find work, but it is likely to be counter-productive—many of the recipients of disability benefits are former recipients of unemployment benefits who, not feeling able to work when the stipulation to take it became more strongly enforced, declared themselves unfit for work. As the amount spent in unemployment benefit was reduced from 1.1% of GDP to 0.3% of GDP between 1980 and 2001, making Britain's unemployment expenditure the lowest in the EU as a proportion of GDP, the amount spent on disability benefits rose from 1% to 2.5% as a proportion of GDP.²⁷ ²⁸ Likewise there are likely to be hidden future costs with present welfare reform such as those associated with measures taken to remediate the poverty experienced by children living in households whose benefits have been capped.

Pensions and the Ageing Population

Pensions have been exempted from the government's pledge that no benefits will increase by more than 1% per annum until 2016; pensioners have retained all their non-means tested benefits including free bus passes, winter fuel allowances and for over 75s, free TV licenses. At the same time the low birth rate and increasing life expectancy are resulting in an increasing number of claims both in real terms and in proportion to the working population. Yet unlike other claimants who have been sanctioned in accordance with the work ethic the government espouses, pensioners continue to receive additional benefits. This position of privilege is not however extended to pensioners of the future; all future pension savings are set to come from today's working population, a population less immediately concerned with the future, yes, but also a population less likely to vote in the present day. The youngest of today's working age adults are now due to retire at age seventy. It is proposed that if the pension age does need to be increased, the age of retirement should reflect the physical demandingness of the profession the individual is engaged in. This is already in force for service personnel. Possibly men in general should be allowed to retire earlier given their shorter average life expectancy.

The state pension, at least for those who have contributed over their working lives, is sufficient; it should not be augmented to account for past wage expectations. The individual's desire to create equilibrium between pre- and post-retirement income should be met with personal contributions to a pension fund. Although the indexing of the state pension to past wages has now been abandoned, the variable element to the state pension means that some pensioners will receive more than double what other pensioners receive. This is perhaps too large a disparity given the difficulty in calculating a person's contribution to society during their working life. If the pension entitlement is going to account for time spent at work, it should perhaps account for public services used during the person's working years—use of the NHS could be incorporated into the calculation as well as the use of any individual welfare account to the extent that it is 'overdrawn'. It is suggested that public sector pensions

are slowly phased out completely but that whatever public sector salary has been lost to allow for this benefit is restored.

It is suggested that for most occupations, citizens in full-time employment at the age of sixty-two are asked whether they would prefer to retire at the age of sixty-five after working full-time for a further three years or whether they would prefer to work on a part-time basis until the age of sixty-seven. If an employee elects to work part-time until retirement, their employer would indicate whether the employee would be required to work sixty per cent of full-time hours or whether the equivalent reduction in working hours would be implemented on an incremental basis over the course of five years. The latter option would be useful for job share schemes in which trainees would assume working responsibilities in accordance with their improving professional aptitude. This option would also assist individuals who aren't accustomed to formal employment to become so on a gradual basis. For those retiring from senior positions, transitional job share arrangements would help facilitate the transfer of responsibilities to successors. To create an incentive for the diminishing hours option, the national insurance contribution accumulated over the five-year period would be assumed to equal what full-time employment would have generated, for the purpose of calculating variable pension entitlement. If an individual approaching retirement age was to change their employment over the course of the transitional period, the number of hours worked since reaching the age of sixty-two would be subtracted from the number of hours required for pension entitlement in order to establish new terms of employment. Where the loss of working hours during the phased retirement period would result in earnings amounting to less than that which the state pension would otherwise provide, individuals between the ages of sixty-two and sixty-seven would be reimbursed with the difference between their wage earnings and the minimum state income, as well as a small tax credit benefit in recognition of their contribution of labour. Workers opting to continue in full-time employment beyond the age of sixty-five or in any capacity beyond the age of sixty-seven would be entitled to receive some pension entitlement in addition to their standard wages while they remain in work, but this would be heavily discounted. However, it is suggested that individuals who work full-time until the age of sixty-five and then work part-time until the age of sixty-seven should be eligible to receive the state pension for this two-year period in addition to their earnings. With this scheme it may be necessary to reduce or suspend increases to the state pension entitlement, but it is possible that for most people the loss of income would be preferable to working until one's late sixties or seventies. According to a standard working week of thirty-five hours, individuals over sixty-two years of age in receipt of unemployment benefits would only be expected to take suitable formal work which would occupy them for twenty-one hours per week.

Whereas in many third world countries where the median age of the population is relatively low, an increase in average age poses little difficulty, in first world countries low births will result in societies where older people are much more numerous. The phenomenon of low fertility is resulting in increasing pressure on the increasingly sparse cohort of labour market entrants as they struggle to support an increasingly elderly population. Decisions in favour of retaining more time and money on an individual level have contributed to the low birth rate, but the collective impact of these decisions is on the time and money of the smaller new generation, who are now required to support those who haven't bred at or near the

replacement rate. The economic activity generated by careerism is supposed to benefit everyone, but there are serious humanitarian consequences of resource depletion and global warming associated with the higher rates of consumption it entails. Admittedly fewer children means fewer future polluters but there remains the issue of excessively burdening the next generation with the present generation's support costs. And the younger generation may ask, 'if they were not even willing to give up time and money to support their own kin, why should I, who am no relation of theirs, work harder to support them?' If the children of the poor can be convinced to look after the general elderly population, the maintenance of child benefit payments could even be presented as a judicious business investment.

Taxation

Significant savings can be made by reducing the amount of lost revenues from tax avoidance and tax evasion; it has been estimated that tax avoidance costs the UK economy £69.9 billion per year and that actual tax evasion costs the UK economy £34 billion.^{29 30} VAT on sales transactions can be very difficult to monitor and there is an estimated gap of 10% between VAT which was collected and VAT which should have been collected, but because so much tax is collected at source through the pay as you earn system, in the UK the annual administrative costs of taxation are currently very low—about £75 per head—and could be increased.^{31 32} However, HMRC faces challenges when embarking on tax avoidance campaigns because the largest corporations are more likely to avoid tax through legal loopholes, and the larger the company the more skilful the accountants and lawyers will be who are recruited to help the company retain their tax savings. It is therefore important that the government closes tax loopholes wherever possible. The government should also increase the level of fines whilst keeping them proportionate to the offence so that the deterrent is evenly distributed throughout the spectrum of taxpaying entities, at the same time as adapting tax laws to meet the changing nature of transactions. Multinational companies and companies trading in non-physical goods can take advantage of reduced costs of mobility to shift activities to wherever the tax treatment is favourable—potentially a different location from where the company's profits are earned—by manipulating the transfer prices between subsidiaries in different countries. It is important that these companies, who may owe much of their success to the infrastructure of their country of origin, are required to pay domestic taxes when their goods are sold on the domestic market.

The place where a tax increase is ultimately charged depends upon elasticities of demand and supply. In the case of a tax on sales, more sales tax will be borne by the seller should the demand for the product be more sensitive to changes in price than the supply, but if the supply of the product is more sensitive to a price increase than the demand, the sales tax will be reflected more in the purchase price. The same happens in respect of wages and income tax—whether the burden of marginal income tax ultimately falls on the employer or the employee depends upon the supply and demand of labour. If the supply of labour is high, the employer can afford to pay less; therefore the cost will be borne by the employee and vice-versa. The distortionary effect of taxation arises because the difference between the cost to a buyer and the cost to a supplier of goods or services will make some transactions

unviable; economic activity will reduce because of a loss of production or a loss of sales. Marginal rates of income tax are particularly prone to these distortions because economic activity beyond that which attracts remuneration at the standard rate of income tax will be relatively less worthwhile. However, it is possible to see the capacity for taxation to marginalise economic activity as a benefit. Given that some economic activity will have to be forsaken for sustainability, it is right that the forsaken activity is that which is of marginal efficacy, and that the process of elimination is achieved by generating tax revenues which can be redistributed to subsidise the provision of goods or services which, while perhaps uncompetitive in the traditional sense, are certainly efficient once environmental externalities have been accounted for. If such a provision for sustainable activity were to be combined with the implementation of strict emission regulations (see Chapter VIII: Proposals) as well as a tax on working hours beyond a certain threshold, there would be a good basis for a more sustainable economy. A land tax is also suggested: not only would it be equitable insofar as it would tax unearned income but it would be efficient insofar as supply of land, being a finite resource, is not affected by taxation. It is suggested that, so as neither to unduly discourage investment nor to disadvantage new buyers in relation to existing owners, a tax on rent would only come into force only once the return on the investment has been recouped. An alternative to a land tax would be an increase to taxes from dividends to at least the level of earned income. This may be more politically possible in the short-term. See Chapter X: The Financial Industry for a discussion on rent-seeking.

Another way in which taxation can help discriminate between sustainable and non-sustainable transactions is through a highly discrete sales tax. The zero-rated status of food in the UK helps to counterbalance the otherwise regressive nature of sales tax which tends to adversely affect the poor who typically spend a greater proportion of their income on commodities. However, a sales tax on food could help protect the environment by giving incentives for consumers to buy food which is produced locally, which has less packaging and which is not of animal origin. At the same time awareness of the role of basic commodity consumption choices could form part of public sector broadcasting. For instance people whose skin tone signifies a greater Vitamin D requirement could be made aware that meat and fish is not essential to maintaining high Vitamin D levels—that fungus dried by UV light in capsule form is also an affordable source of Vitamin D. To maintain support for poor families there should be a lower rate of sales tax levied on all products in any given line which are cheaper than the median line price. It is however suggested that excises are extended to tea, coffee and cocoa products because of the inelasticity of demand for these items, their environmental impact, and because duty on tea, coffee and cocoa products would make the cost of eco-labelling compliance relatively small and thus more rewarding for suppliers. Excise duties on tea, coffee and cocoa would also encourage more sustainable alternatives such as chicory and carob. The exemption of locally produced, seasonal groceries from sales tax would reduce the environmental cost of importing food and would work like a tariff without attracting too much censure. Taxes which guide consumer behaviour can be presented as being coercive but in reality are necessary to offset the forces which determine impulsive consumption. Moreover, when a purchasing decision is made the customer is not apprised of the commodity chain which has resulted in the availability of a certain product. Given that it would be onerous for the consumer to learn the details of the commodity chain

associated with every product they buy, it makes sense for duties or sales taxes to be levied where it can be calculated in advance that there is a significant human or environmental cost associated with a particular commodity. This would act both as a deterrent for the consumer and as compensation for the producers. Obviously if changes of this kind were to be implemented across the world at the same time, there would be a devastating shock to supply chains; therefore a transition to more sustainable production would require the oversight of an inter-governmental organisation such as the World Trade Organisation. Ultimately though, it would be in everyone's interest—the environmental impact of very poor people's purchasing power being improved would have a relatively small environmental impact given that most if not all of their income would still be spent on basic provisions with a limited environmental impact.

It would be desirable for the World Trade Organisation to provide incentives for the restoration of tariffs for reasons of food security, biodiversity and the cost of transportation, but also because revenues from tariffs are fairly easy to enforce for countries with less advanced infrastructures; tariffs would give these countries a better chance of generating sufficient tax revenues to comply with international environmental objectives. In the UK as well, additional tax revenues will be required so that environmental objectives can be honoured, especially because tax revenues from North Sea oil are set to fall from 1.8% to 1% of GDP by 2030 and because eliminating road fuel will result in a loss of £30 billion per year from fuel duties.³³

Chapter IV: Deprivation and Social Work

Poverty

Although policies by the Conservative-led government of 2010-2015 such as the reduction to crisis loans made dependence on emergency measures more perilous, much dependence on emergency measures has arisen because to many people adversely affected by austerity measures, remaining culturally included is considered to be an essential part of life, and in many cultures money plays a significant part in this. The demand for high-interest emergency loans attests to the desperation of many people with the desire but not the genuine means to participate in high-consumption cultures. Also, in many cases, hardship is exacerbated by a lack of education regarding food preparation which is partly due of the prevalence of ready meals and other more expensive and less healthy processed food.

For individuals with very low incomes who are in need of financial support repayment terms for government loans could be stipulated more clearly and a low level of interest charged to reduce the burden on government resources. In serious cases a social worker could be involved to assess the best and most viable course of financial assistance. Low-income debtors who don't comply with a customised repayment schedule in the first instance might be required to make repayments in kind by undertaking work sub-contracted to the government by businesses. This could replace the Mandatory Work Activity scheme which the Department of Work and Pensions announced would not be renewed in November 2015. While the nature of industry is subject to rapid changes, and these changes are difficult to discern, government loans could be extended to students enrolling on vocational courses. This would enable those with qualifications found to be difficult to redeem to retrain more easily. The interest rate for the loans to students would be lower owing to the deferred repayment period and the lower likelihood of recipients defaulting. If non-commercial but nonetheless enjoyable social activities which transcend economic class were made more widely available, the loss of utility resulting from austerity measures would be diminished. Also with greater awareness of the plight of the poor there may come a stigma surrounding exorbitant wealth-acquisition, which would, by encouraging the inclusion of lower-waged individuals in social situations, help prevent instances of irresponsible spending arising from relative poverty as well as helping to create a smaller wealth differential between the rich and poor to start with.

Silver defines social exclusion as follows:

'Social exclusion is a multidimensional process of progressive social rupture, detaching groups and individuals from social relations and institutions and preventing them from full participation in the normal, normatively prescribed activities of the society in which they live'.¹

However, it is difficult to define what activity is normatively prescribed when so many different cultures exist simultaneously within the same nation and some are more materialistic than others. The definition of relative poverty as being the receipt of an income

of less than 60% of the median national level may not be an appropriate measure of poverty where the median income is so low that income higher than 60% of this median level would still commit the person to absolute poverty; or conversely, where the average income in a country is high enough and the existence of less materialistic culture prevalent enough so that an income of less than 60% of the median level would neither result in the experience of material deprivation nor debar the person from substantial cultural participation.²

Bailey and Brake claim that ‘welfare schemes... tend to sustain rather than undermine the established situation’ and that ‘(welfare scheming) does not challenge ideologically the fundamental nature of capitalist democracy.’³ Many social workers seek to challenge the fundamental nature of capitalist democracy, but given the difficulty they are likely to experience in directly achieving substantial structural change, it would possibly be worth concentrating the resources available to them on effecting change on the level of the individual client. For instance social workers may be well placed to address the issue of social exclusion by facilitating access to support groups, and because mental health issues may be precipitated by social exclusion, the creation of non-commercial social engagement facilities can secure support on the basis of having therapeutic value. Because social work incorporates elements of many disciplines, social workers have an overview of society which enables them to manage or administrate solutions on behalf of socially excluded people, and with their having less allegiance to any of the vested interests associated with more specialised disciplines, social workers may engage with a range of systems more impartially.

While the advancement of theoretical work in the field of social work may result in the intuition of experienced practitioners being neglected, the increase in credibility afforded by a greater academic basis to social work does give practitioners a greater perception of legitimacy and might help provide resistance against target culture, the preponderance of which is likely to compromise their professional ethics. One example of this might be where an inexperienced young person is encouraged by a social worker to take the course of least resistance by remaining in education primarily so that the government can remove the individual from the ranks of those people not in education, employment or training. However, in this situation, if the individual is not academically inclined, the social worker is in dereliction of their duty of care by not looking beyond the government and the individual’s immediate alliance of interest.

Direct Payments

A more discrete provision of care neither necessitates the dismantling of local authority provision nor the conception of the service user as a consumer. Furthermore, from an economic perspective the direct payments scheme which gives users of social services money to pay for their own care disrupts the operation of economies of scale: it is much more expensive to provide a service when demand is more difficult to anticipate. Whereas previously individuals would have been subscribed to services by the care provider, now choice may devolve to the consumer and in some matters this is likely to inhibit predictive mechanisms which allow for the delivery of ‘wholesale’ services.

Begum and Fletcher found that due to Direct Payments and the Independent Living movement, disabled people are perceived less as passive recipients of services and increasingly as demanding consumers.⁴ However, it is arguable whether fulfilling the role of a demanding consumer is desirable, but even if it is, by only participating in a free-market system in a receptive capacity, the disabled person is only involved in a simulation of capitalist society. If either the recreational or the vocational activities disabled people are encouraged to participate in are facilitated by another party, the pretence of normality—if sought on the disabled person's behalf—may prevent the client from engaging with a reality which exists in accordance with their own unique perspective.⁵ The consequence of perpetuating a simulated reality may be that disabled people become preoccupied with emulating abilities they don't possess while those working for them labour under a misguided notion of how equity can be achieved and so do not identify and build upon the strengths the client does possess. The difficulty of establishing Direct Payment provisions is demonstrated by the regional variation in its implementation. In London in 1994, 80% of respondents were making payments whereas in the North East this was only true of 17% of respondents.⁶ This variation has been attributed to the culture of municipal welfare in traditional Labour areas being less amenable to the concept of care recipients as consumers.⁷ Also, it may be that rural areas and places far away from London are more averse to embracing policies which require a greater alignment with agendas issued by central government. There have been criticisms about class prejudice affecting social workers' decisions as to who should receive direct payments.⁸ However, it should be remembered that there may be a higher incidence of administrative ability among people from certain background because of factors such as higher educational attainment and it would be unjust to deny eligible individuals opportunities if they are better equipped to utilise them.

Arguably it is inevitable that the act of seeking support necessitates ceding some responsibility to the service responsible for providing the client's care. However, if services are only rendered in accordance with the needs of the client as stipulated by health professionals, of course the individual element of care may be neglected. The Individual Service Fund was intended to help address both the perspective of the individual and others to whom the recipient of care may wish to defer their judgement to on certain issues. According to the 2010 Audit Commission report, 'an individual care provider, family member or friend spends the budget for the holder to meet the outcomes in the support plan, as specified by the holder'.⁹ In this way, the responsibility of arranging care lies with an individual the client trusts, and the client is able to oversee the process of securing care provisions without having to make arrangements themselves - a responsibility which may frustrate an individual without the aptitude or inclination to undertake administrative duties.

In many cases the process of overhauling existing arrangements may be more traumatic for the service-user than their continued adherence with a service which is only moderately flawed. In some circumstances the assimilation of skills associated with organising their own care is a difficult process that offers little sense of liberation to the disabled service user. As Brown and Carmichael contend, 'many disabled people are elderly and feel they've earned the alleviation of responsibility that comes with retirement and opt for directly provided services'.¹⁰ Further, many clients take comfort from the familiarity of a routine and the continued presence of carers who they've grown to accept; therefore the need

to explain tasks and routines to staff unfamiliar with their needs would cause anxiety, as would the loss of rapport associated with losing known staff.¹¹

The difficulty of accommodating the needs of people identified as suffering from mental illness is illustrated by figures which indicate that up until 2003 only 132 people who were considered to be mentally ill had taken up the option of direct payments nationwide.¹² Even though, local authorities 'provide direct payments to those individuals who can give their consent', the availability of direct payments to people identified as suffering from a mental illness is limited because consent cannot be fully established where capacity is deemed to be absent.¹³ In instances where the mental health service user varies in their appearance of having control, Leece suggests that advanced directives could be written by the service user for workers to follow when the service user appears to be less in control.¹⁴ In such circumstances, enduring power of attorney could be granted to individuals approved by the service user. However, difficulties may still arise in determining the precise juncture at which the service user relinquishes or regains control of their own behaviour, and if the alleged lapses in judgement occur on a frequent basis but the service user contests the deferral of their autonomy to an external agency during lucid periods, the process of seeking outside assistance may be fraught with legal repercussions. The experience of direct payments may be more productive for people with learning disabilities because capacity may obviously be sufficient for certain aspects of living and not others, without there necessarily being the additional complication of fluctuating capacity. In general, unless the advantages of utilising direct payments are significant, the additional bureaucracy deemed necessary to prudently manage a leave of sound judgement and the additional monitoring required to establish the basis for it may prove undignified for the service user and expensive for the local authority. The amount of administration necessary to determine what provisions come under the remit of the individual's capacity and then arranging these provisions may be so great as to make the increase in certain liberties the direct payments scheme provides less significant than the inconvenience of the administrative work.

The Audit Commission reveals that 'research participants stressed that self-directed support can only flourish in a culture with a positive approach to risk'.¹⁵ However, as a cultural phenomenon, it is difficult to challenge risk-aversion in just one of its manifestations. It is unreasonable to expect practitioners within over-protective authorities to take the risks which are necessary to provide a truly client-centred service while social workers are held personally accountable for accidents, and are, because of their deference to cost-benefit analyses which are determined by the potential for adverse media coverage, perhaps out of touch with their own professional judgement.

Child Protection

As society has become more atomised and communities have lost coherence, the state has taken a more significant role in monitoring the welfare of children: all professionals in contact with children are now encouraged to report signs of abuse and neglect. However, in some cases, the destructive effect of protective measures may be more significant than the actual risk of abuse or neglect the protective measures are intended to address: due to the

exaggerated perception of danger resulting from dramatised media coverage, the suffering caused by intrusive surveillance may not be given sufficient stress in a risk assessment. Also, the strong uniformity of cultural values among social workers might result in a failure to distinguish between disregard for cultural expectations and genuine abuse.

The Department for Children, Schools and Families has suggested that 'anyone who has regular contact with children and young people is in a good position to notice changes in behaviour and physical signs which may indicate involvement in sexual exploitation but parents, carers, teachers, social workers, doctors, school nurses, looked after children, nurses, sexual health practitioners and youth workers are particularly well placed'.¹⁶ While this may be true, greater vigilance among all the above-named professionals towards children and parents comes at the price of trust on both sides. It has even been proposed that the detection of child abuse should devolve as far as a potential victim's classmates and friends; that children and their families should be prepared to report friends and neighbours to the authorities.¹⁷ As well as having the potential to corrupt friendships and impair community relations, a more universal vigilance may result in false accusations, and if a climate of suspicion distorts the expectations of social workers or other professionals involved in child protection, this may influence their expectations and impair their ability to rationally process the evidence they are presented with.¹⁸

Different cultures have different values regarding child development so there will inevitably be differing opinions in different places as to what constitutes abuse or neglect. The challenges for a social worker are to remain sensitive to cultural phenomena whilst adhering to the statutes of the law, and to attempt to reconcile our nation's promotion of multiculturalism with the disdain which may be felt for some of the values of cultures which comprise our multicultural society. In order to attempt reconciliation between the various cultural perspectives which constitute society, common cultural references are extemporised. However, many people may experience these attempts at unification as a kind of subtle censorship at variance with the ostensible promotion of multiculturalism, especially if the extemporised values become enshrined in law. Once pragmatic attempts to unify diverse cultures become legitimised, deviancy from the new cultural norms may be interpreted as evidence of fundamental dysfunction, and interventionists may argue that since a child is necessarily subjected to popular values at school there is a risk of a moral dichotomy developing if the child is allowed to remain in a home environment which is deemed abnormal. Some of the prescribed definitions of abuse which social workers refer to when deciding whether a child should be subjected to child protection measures may be influenced by social attitudes which derive from the false impression of prevalence of abuse and neglect arising from the disproportionate degree of coverage given to cases of this in the media. The general population may be horrified by stories of child abuse and neglect portrayed in the newspaper without appreciating that the sympathy these stories elicit cannot be productively rendered with the greater sense of vigilance endorsed; the level of vigilance which is endorsed may be more pernicious to the development of children in general than the absence of support to help mitigate instances of child abuse and neglect.

It is often suggested that disabled people are more likely to be recipients of maltreatment than non-disabled people because of their greater level of dependency and because of the difficulty many disabled people experience in trying to successfully

communicate their concerns.¹⁹ However, the same impairment to communication may also prevent a disabled person from expressing their appreciation to a carer which might be profound: the disabled individual may feel gratitude for the services rendered to them even if these services are imperfect. While it may frustrate a disabled child if they cannot express their dissatisfaction; it may be equally frustrating if they cannot defend their carer against charges of neglect or abuse made by a stranger should the stranger be acting on the child's behalf erroneously. Moves to increase surveillance in residential care settings are likely to result in a culture of suspicion which may result in resignations and staff-shortages that would be disruptive to the clients, and are therefore to be avoided as long the net effect of the carer's efforts is beneficial. Unfair suspicions surrounding innocent action and a lack of genuine acknowledgement for good work may adversely affect the quality of carers' output.

The protective factors which balance hardships experienced by victims of neglect may constitute essential elements of a child's identity.²⁰ By conceiving of protective factors as elements of the child's past which are categorically maleficent, no opportunity cost is assigned to the imposition of alien values. But a child wrested from familiar circumstances may be bewildered by new circumstances and expectations for which there is no precedent in their experiences to the present moment. Although new surroundings may appear comfortable to individuals accustomed to associating certain environmental factors with healthy development, a child who has grown tolerant of discomfort may find themselves being expected to respond to and flourish in an environment which feels foreign and where propensities of theirs which have arisen in response to past circumstances are unrealised. It may not be good for the child's self-esteem to be placed somewhere where they are expected to thrive, if by not doing so deficiency or pathology is attributed to them. The child may also continue to identify with parents who have been denuded of their duties according to the child's testimony, and so may suffer because from their new lives they envision family members missing them or resenting them, without - in their new situation - having the means to redress the imagined hostility.

In many adult relationships the balance of power can be difficult for an outsider to ascertain. However, because children are generally more candid and less sophisticated than adults it is unlikely they would manipulate the perceptions of an observer. For this reason abuse is easier to discern. Abuse can also be detected more easily in children because children are less able to rationalise or make moral judgements about or rationalise treatment they have received. Because of this they are prone to enact the treatment they have received onto others and thereby make known the abuse they have experienced. Therefore a school with an unyielding bullying policy which punishes such instances of projection may inadvertently reinforce the abuse or neglect a child is receiving at home or elsewhere. Despite an adult's superior executive ability, the experience of neglect and abuse may still influence the relationships they form later in life including relationships with their own children.²¹ However, while some parents may be prone to make their child experience whatever abuse or neglect they have themselves suffered, it is important to remember that the temptation to make others experience their suffering will occasionally present itself to anyone who has suffered at all.

The process by which social workers identify certain values as being intrinsic to successful parents may be consensual amongst social workers and policy-makers simply

because many of these individuals have similar social backgrounds.²² Yet values based on socio-economic predisposition cannot be assumed to be a universal indicator of good because society requires people from different backgrounds to perform its different functions. Even where abuse is undoubtedly apparent, it could be argued that a vicious cycle of projected abuse can't be expected to terminate abruptly with the parent. Excessive prejudice is also a problem. Browne and Hamilton-Giachritsis suggest that 'a factor common to many child abusers is a heightened rate of arousal in stressful situations', but a heightened rate of arousal in stressful situations may be viewed simply as the negative manifestation of a greater emotional capacity.²³ If some people are excluded from parenting based on the likely occurrence of pre-defined abusive or neglectful situations transpiring, the children they give birth to and who to some degree resemble them may not experience conditions which are conducive to their development: while in a civilised society certain standards can be universally aspired to, it is also important to acknowledge diversity.

Therapeutic Approaches

Experience may be considered as knowledge and skills arising from hypotheses improvised consciously or unconsciously, skills which may be verified upon engagement with clients in different circumstances. While academic terminology may have evolved to be the standard format for the transcription of complex ideas, if the intuition of practitioners is undervalued, the worker is implicitly presumed to possess no inherent predilection for their vocation and is discouraged from exercising the talents which actually distinguish them in their role.

General systems theory was devised to illustrate the interconnectedness of physical laws but has been adapted to describe systems within society. General systems theory considers systems as being either conducive to chaos or to increased order, entropy or evolution. An entirely closed system must always be entropic because it can derive only finite sustenance from itself, while an extremely open system concedes its integrity and tends to chaos. A system must be open to some extent to incorporate influence which though itself entropic, contributes to the evolution of the host system by expending energy within the host system once subsumed. The principles of open and closed systems can be applied to the concept of micro and macro policies in therapeutic work. In some respects micro systems are more open because they can evolve by the reformation that occurs upon sustaining challenges from changing circumstances and in some respects macro policies are more closed because they are often developed in a context beyond the vicinity of the circumstances they are purported to affect. However, the macro system of evidence-based practice is often developed with an overview of various practice settings while the scope of an individual's observational analysis in a micro system may be limited by the peculiarities of a specific context. Ideally a synthesis of theory and practice would exist in which individual assumptions are subjected to a degree of scrutiny. Reflective practice is the practice of learning to discipline impulses by applying disinterested interpretations to one's own actions: the exercise of writing or speaking candidly to oneself improves this faculty.

People said to be depressed are generally keen for someone to listen: someone to sympathise with them and understand the uniqueness of their situation. As it is unlikely

someone would contemplate suicide without having tested the premise of their despair quite rigorously, intellectual appeals to them are unlikely to be of much use: it's unlikely the giver of advice knows the sufferer's mind as well as the sufferer knows it. Although a new perspective may of course be of some use it is likely that sympathetic concern is of more importance. Certainly if counsel is given dismissively, in the spirit of one wishing to help yet desirous of absolving themselves of involvement, this is unlikely to be well received. Likewise at times of high anxiety, being confronted by another's fortitude is likely to be felt as intimidation, even that the sufferer is being dared to suffer yet more or else justify their misery in plain terms. Even if the intention is to help, if the advice is experienced as provocative this opinion should be respected. Sometimes those with the most experience of a situation aren't the best people to help on an individual basis as empathy is often earned at the cost of some sympathy: although experience of suffering may help someone to understand another's suffering, it may prompt the helper to begrudge the alleviation of the client's suffering should the client's suffering be of a lesser magnitude than their own is or has been. Children are obviously more amenable to new ideas than adults but it is hard for schools to inculcate a work ethic through which sadness can be braced against while most attention is given to a specified curriculum which discriminates against those not in the middle range of academic achievement (see Chapter II: Schools).

In respect of dependency, it may be that the act of submitting to the agency of another person merely supplants the former dependency therefore professional instruction should be carefully moderated and relied upon only until more stable sources of contentment can be found. These sources should however be multifarious, and service users should be encouraged as far as possible to assume responsibility for their own recovery lest any strategies for initiating or maintaining stability become identified with an agency which is finite or conditional. However, the experience of fraternity in submitting personal information to a group or sharing it with an individual whose suffering is concurrent with their own may help the service user to progress beyond an accustomed state of subjection. While theory may contribute to a practitioner's understanding of general patterns of behaviour or circumstances, the exercise of extrapolating from available data the likely responses of an individual to a particular stimulus may prove unhelpful because an individual's motivation may have complex origins and be difficult to anticipate accurately unless the individual is applied to directly. It is also likely to make the service user feel like they are being objectified.

Although it may be important for staff to have prior knowledge of relevant details of a client's past for the purposes of assessing risk and making appropriate referrals, an excess of anticipation may prejudice the worker and cause them to consider the client overwhelmingly in respect of past actions or oversights which bear little relation to their present condition. A contract which fails to recognise the full spectrum of risk and applies security measures justifiable in only the most dangerous cases may be unnecessarily restrictive and lead to the client perceiving that workers have an erroneous or deprecatory opinion of them. Furthermore, in extreme cases, as well as generating mistrust, the staff's anticipation of violent behaviour may prove directly counterproductive because the client is more likely to perceive that the worker is braced for violent conflict and follow their cue. Clearly, in order to have insight into another person's stress management it is important for the worker to be

aware of their own stress responses. However, whereas it is important not to further stimulate individuals who are in a state of heightened arousal, work undertaken soon after an episode of anxiety may be particularly valuable. Cognitive-behavioural therapy (CBT) helps individuals to rationalise unconscious thought processes which compel them to demonstrate certain behaviours.

It is necessary for a worker both to consider needs presented as immediate and to ascertain those which may pertain to the client's circumstances in a different context, in a different location perhaps or a different time. If the discretion and care a worker manifests is significantly greater than what could be realistically expected from the general public or even from other professionals, it is important to prepare the client for the indifference or resistance they are likely to be met with in other situations. Having acknowledged the consequences of applying an accustomed mode of behaviour within unaccommodating circumstances, an individual may be willing and able to reconstitute their accustomed mode of operation to some degree. If a client wishes to remain in a relationship where they perceive themselves to be victimised, it may be useful to help the victim achieve a greater appreciation of how the alleged aggressor's susceptibility to violent thoughts and actions arises as well as working with the alleged aggressor to help them manage their own problems. Workers can acknowledge that an abuse of strength may derive from feelings of powerlessness and insecurity without going so far as to excuse violent actions. A worker can help identify how an individual's sense of dignity can be developed so that their victimhood isn't projected onto others and violence isn't used to redress perceived injustices. In the safety of a clinical environment workers can simulate or talk through common sources of conflict.

Just as it may prove distracting for a service user to defer exclusive responsibility for their difficulties to an authority figure, it may be unhelpful for workers to extend more than a passing acknowledgement to the social context of oppression when working directly with clients. While some awareness of how injustices in society may contribute to understanding an individual's difficulties, it is important that the worker contributes to an understanding of the ways in which the service user's progress is situated within the realm of their own volition as far as possible, unless of course the service user specifically expresses an interest in politics and it is therefore conceivable that the client's own volition could effect social change. A worker can explore how the client may adapt their environment to concur with their own predilections and create a personal space as free as possible from discord. A worker could also help the individual to identify the deprivations that undesirable behaviour has been adopted to address. However, the difficulty of finding a suitable occupation in the present may be compounded by the fact that years of dependency may have effaced the memory of former modes of living, and that whatever devices were attempted in the past to achieve contentment were insufficient to prevent recourse to morbid habits.

Even though escapist behaviour may provide acquittal from an individual's self-judgement, at the same time this behaviour may actually be the cause of the self-judgement. The repercussions of neglecting other duties in favour of resorting to the questionable behaviour may exacerbate the low opinion the individual has of themselves, and cause them to indulge in the specific behaviour. A worker can help the individual to reform their expectations and ascertain how a desired self-image or environment can be achieved on a more stable basis. A worker can also help an individual to explore how their perspective may

be altered to accommodate seemingly difficult circumstances or else help the client to explore how their lifestyle can be changed. If the client can make a record of and examine their thoughts and feelings as difficulties emerge, they can perhaps attain a sufficiently detached perspective from the impulses which impel them to entertain the temptations they are subjected to. An individual whose condition is identified by a particular behaviour may yet exhibit the opposite behaviour in accordance with the varying influence of the precipitating environmental stimuli: the service-user may alternate between exhibiting the behaviour identified with their condition and feeling remorse for it. For the remorse to be used constructively to eventually negate the target behaviour, the service-user's remorseful feelings must be respected. However, while the client may be susceptible to moderating the target behaviour while its counterpart behaviour is waxing; should the consequences of actions undertaken under the influence of an alternate mind-set be presented to them too starkly, a defensive attitude may compromise the whole reformation process. At the same time a service-user shouldn't be treated with so much deference that their remorse is considered an end in itself. If a service-user contemplating change is simply allowed to discharge their willpower in the act of planning for their reformation, they may feel that interspersing undesirable behaviour with occasional periods of remorse is acceptable.

If the wants of a patient are merely a conduit for the demands of an external agency, the subject's avowed interests and real interests may be different, and so the persona the caseworker or psychiatrist empathises with may not be representative of the patient's 'right mind'. If the needs presented by the two elements of the client's self are mutually exclusive, unregulated affective empathy on the part of the caseworker—sympathy confined to the 'here and now'—may discriminate against the more fundamental needs of the patient. Despite their great influence on psychology, Freud's theories were peculiar and this may be attributable to the fact that his practice experience consisted of work with clients who in general were unusually wealthy and had an abundance of leisure. Their leisure may have been complicit in their withdrawal into a state of contemplation which was perhaps unbecoming and conducive to neurosis; while their wealth would have set them apart from and perhaps aroused the indignation of fellow beings with whom some affinity may have been felt without it being consciously recognised.

Task-Centred Therapy and Cognitive-Behavioural Therapy

Techniques like task-centred therapy are relatively simple to implement and allow more people to be processed at the primary care stage which can prevent the deprivations of liberty attending admission to hospital. Task-centred therapy is a milder form of coercion than cognitive behavioural therapy and while the focus is fixed on real-life objectives, by simulating outside relationships with the client, the caseworker can address dysfunctional modes of responding to others.²⁴ This simulation achieved in collaboration with the caseworker can help the client to see a feared behaviour being performed and appreciate that there are no adverse consequences.²⁵

Since task-centred therapy depends upon the client electing the issues they would like to discuss, task-centred therapy may not be suitable for when the client has a limited

understanding of their behaviour. A publication about cognitive therapy states that ‘a special disorder can develop when the combined effects of predisposing and precipitating factors lead to a specific level of dysregulation of the normal systems of mental functioning’.²⁶

Where there is a high level of predisposing risk factors, therapy which conforms to the agenda of the patient may be insufficient because the client’s collusion with self-destructive thought patterns may contribute to their crisis. While a therapist may have a more limited understanding of the origin of a client’s supposed dysregulation, they are perhaps in a better position to witness its effects in terms of the client’s behaviour. This attests to the importance of collaboration between the client and caseworker. Furthermore, although a client may have developed a complex system of responses which have developed according to past events, these may not be relevant to circumstances arising at the present time. These responses may only be appropriate insofar as the conditions of the present are identical to those of the past. Where the client’s capacity to appraise new circumstances in isolation from past events is limited, task-centred therapy may prove insufficient because the therapist is prevented from remotely challenging responses to the circumstances in question.

With some encouragement to acknowledge the hidden motivations behind problematic behaviours, the client may be able to act upon the discoveries made in therapeutic sessions in their everyday life. However, it might be very difficult at the outset for the practitioner to identify behaviours to engage with and to identify whether the attenuation of these behaviours would be reasonably viable. Also, the longer thought patterns remain concealed, the more impervious they become to scrutiny and the more integral they become to the identity of the individual. Some cognition tends to arise by reflex and is not subject to volition or conscious control, which attests to how deeply some cognitions have been absorbed into the mind of the individual. If these deep thought processes can be altered at all, the sense of violation felt and the impact of losing patterns of behaviour which have grown around the target cognition may be too great to justify the change, if change is possible at all. Also, the durability of behavioural change is likely to be compromised by the fact that the changes have been formed in part through the intervention of an external agent. Although it has been shown that significantly more patients treated with cognitive behaviour therapy showed an improvement in symptoms of schizophrenia compared with a counselling group; since all the patients in the study were taking medication, this association could be the result of medication denuding the individual of the awareness of having any problems to talk about at the same time as denuding them of conscious resistance to the exertions of cognitive therapy.²⁷

Cannabis and Schizophrenia

It is difficult to establish a causal link between cannabis and schizophrenia because of the difficulty both in finding people who use cannabis but no other recreational drugs and because of the difficulty of separating the people who actually do not use any other recreational drug from those who just say they do not.²⁸ It is also difficult to prove that cannabis use causes schizophrenia because experiences known as the prodromal symptoms of schizophrenia might cause the affected individual to feel an affinity with cannabis which

encourages its use.²⁹ In research conducted by Bovasso and Rey et al., baseline depression did not predict later marijuana usage, but this research which seemingly challenges the self-medication hypothesis is unreliable because there are troubles other than depression which cannabis may be sought as relief from and because people who self-medicate with recreational drugs may not present themselves to a doctor as sufferers of depression.³⁰

A study by Chen et al. found that ‘the major psychoactive component of cannabis... (increased)... ‘presynaptic dopamine efflux and utilisation in the prefrontal cortex in rats’.³¹ As symptoms which are used to diagnose schizophrenia are associated with the dopamine systems this study suggests that the consumption of cannabis creates conditions in the mind which resemble those of individuals diagnosed with schizophrenia. A study by Solowij revealed that ‘ex-cannabis users did not differ significantly from long-term or short-term users’, yet ‘when ex-users were compared with controls, they differed significantly (or near to significantly) on every measure (of mental health) except somatisation’.³² The fact the cessation of use generally heralded no change in mental health relative to non- users suggests either that the effects of cannabis intoxication outlast the addiction or that cannabis tends to attract a certain kind of person. There is perhaps some truth in both statements.

Szalavitz likens the ‘sudden discovery of great meaning’ experienced by people under the influence of cannabis to ‘the psychotic experience of schizophrenia’, and observes how the two psychoactive ingredients in cannabis produce complementary effects which simultaneously stimulate and inhibit a ‘schizophrenic’ mind-set.³³ It was found that CBD, the other psychoactive ingredient in cannabis, ‘could counteract THC’s tendency to create psychotic symptoms’.³⁴ In this way the dual nature of cannabis intoxication can be likened to the dichotomy of positive and negative symptoms in schizophrenia.

In a study by Leeson et al. measuring the correlation between cannabis use and schizophrenia ‘only 3 of the 53 patients who could confidently date first cannabis use developed prodromal symptoms prior to the onset of cannabis use’.³⁵ The fact that according to this study cannabis use nearly always precedes the onset of symptoms deemed schizophrenic suggests either that cannabis use causes schizophrenia or that the prodromal symptoms of subjects went unnoticed prior to their official identification. The fact that ‘cannabis use in psychotic patients appears to decline spontaneously during the year leading up to presentation’ can perhaps be explained by the fact that despite the short-term relief provided by cannabis use, in the long-term the stimulation users grow accustomed to deprives them of the ability to experience pleasure in everyday life, and causes a dependency on a quasi-psychotic experience which in the drug’s absence is found in everyday life.³⁶ Therefore it may be less useful to talk of a predisposition to psychosis rather than a predisposition to boredom, which is to a large extent a social problem.

Substance Misuse

If drug addicts are to be considered objects of dependency It is doubtful whether it is humane to decriminalise substances, especially if the treatment consists of a chemical regime of correction: as part of Portugal’s decriminalisation of drugs, drug users can be forced to receive treatment for their condition.³⁷ By not acknowledging the complicity of the individual

in the criminal acts which proceed from addiction, the drug itself becomes the cause of the crime rather than the individual, who is assumed to be incapacitated. If the drug user's volition is thus impaired and the social evil is intrinsic to the drug there is no moral justification for facilitating the proliferation of drugs like heroin by legalising or decriminalising them.

Arguing for the decriminalisation of illicit drugs Blank states that 'as the problem increases, the spending increases, and it is reasonable to ask at what point the Treasury will look to reduce or stop spending... a figure of £1.4 billion per year is thought to be the amount spent directly on combating drug use'.³⁸ Yet a study by Transform reveals that the total social costs of Class A drugs in England and Wales in 2000 was between £10.4bn and £17.4bn. These estimates were inclusive of costs incurred by unemployment, criminal justice, health problems and social services as well as direct government expenditure.³⁹ However, it is possible that in many instances the above-mentioned costs would be present in another form in the absence of Class A drugs.

As a result of the exodus from Iran of drug suppliers in the 1980s following the collapse of the Shah's relatively permissive regime; in Pakistan, a country which had had no serious problem with heroin in the previous decade, there were an estimated 700,000 heroin addicts by 1988.⁴⁰ Gossop explains this with reference to the availability hypothesis which asserts that the greater the availability of a drug in society, the more people are likely to use it.⁴¹ The greater access resulting from legalisation or decriminalisation facilitates the succession from the initial testing phase to more regular usage. However, although complete acceptance results in non-users or speculative users being encouraged to initiate or reinforce their usage, it is important that sympathy is not withheld from existing users.

After the prohibition of alcohol was lifted in the USA in 1933, the public's perception of the social problems arising from its use became confined to certain susceptible people.⁴² The same process of scapegoating is occurring today with cannabis. The popularity of cannabis is such that it was temporarily de-classified to Class C in the UK and many people, including those with considerable authority or influence, project the risks associated with its use on a minority of individuals who they claim are predisposed to psychotic illness. In this way, any action of the drug which is irrefutably and universally toxic is censored. A correlation has been observed between a blind diagnosis of alcoholism and the presence of the A1 allele of the Dopamine D2 receptor gene, but the presence of this mutation may indicate the presence of a range of traits, of which susceptibility to alcohol is only one.⁴³ While certain mutations exclusive to Ashkenazi Jews result in physical illness, the same mutations are also responsible for certain intellectual endowments, yet just as not being Jewish doesn't necessarily make you less intellectually able, neither does the absence of the A1 allele of the Dopamine D2 receptor gene confer immunity to alcoholism.⁴⁴ Having said this, sometimes the biological basis for dependency is not given enough emphasis. Gossop attributes alcohol misuse among Native Americans to 'not acquiring the white man's cultural controls defining the appropriate uses of alcohol'.⁴⁵ Often those drugs which are socially acceptable in the context of a specific culture are those which are native to the area in which the customs associated with the culture have evolved. Here, certain substances may be considered integral to the ecosystem which the native people participate in. This is the principle of bioregionalism. With the exception of alcohol and hallucinogenic mushrooms,

none of the recreational drugs commonly used in the UK today occur naturally in the wild, although it could be argued that the acceptance of foreign values warrants an acceptance of foreign drugs.

While dreams are protected from the mundane operations of the conscious mind, hallucinations are played out in a waking state. Hallucinogens thus disable the homeostatic function which has evolved to moderate an individual's exposure to information.⁴⁶ The opponent-process theory of acquired motivation posits that 'the brains of all mammals are organised to oppose or suppress high levels of arousal... The adaptive advantage of this process is presumably to ensure that behaviour is not disrupted by intense psychological arousal'.⁴⁷ Psychoactive drugs disrupt the equanimity of the individual's behaviour which has evolved according to the individual's experiences. Without this protective mechanism the individual loses accountability for their actions.

Legal differentiation between highly psychoactive strains and milder strains of cannabis, as well as differentiation by gender and by plant component would significantly reduce the average potency of cannabis available. While cannabis in all its forms is given the same designation, the risks subsequent to detection for smugglers and cultivators are no more for one strain of the plant than another, therefore those involved in its production have no incentive to produce cannabis which is less debilitating or traumatising in its effect and remain solely concerned with maximising the redeemable value of each operation. The efficacy of THC in low concentrations is such that while symptoms of intoxication would still persist for longer than those of alcohol, the acuteness of symptoms is low enough for the individual's functionality not to be substantially impaired for days after using the drug. Hardy varieties of cannabis mild enough to be partially decriminalised can be cultivated domestically in greenhouses, even in a temperate climate. Although in one respect consumption may be encouraged by partial decriminalisation because lowering the legal threshold creates a degree of social acceptability conducive to first use; many existing users currently forced to decide between high potency consumption and complete abstinence would, with the suggested changes, decide in favour of cannabis use which is less debilitating.

Ill effects of immoderate drug use are typically made apparent either by impairment of personality or impairment of productivity. Although these consequences are attributed to drugs inducing or enhancing extroversion or introversion respectively, the manifestation of apathy associated with more introverting substances may also result in personality impairment as the prevailing demands of the external environment create tension with the desired level of introspection, while the excessive candour associated with more extroverting substances is likely to conflict with professional as well as social norms. In order for there to be a more moderate provision for recreational substance use, it is suggested that cannabis use and heavy alcohol use are recognised by the law on equivalent terms by slightly increasing the legal status of the former and slightly decreasing the legal status of the latter. The stipulated quotas for personal use of cannabis and alcohol could be set high enough so that those inclined to sustain morale with recourse to substances could continue to do so to but low enough to promote physical health and productivity. However because it would be impracticable for limits to be set on an entirely discretionary basis, it is suggested that a limit for alcohol consumption could be set somewhat higher than the existing recommended limit

of twenty-one units per week for men and fourteen units per week for women, and that low-potency cannabis and additional alcohol provisions could be made available during festive periods. Limits could conceivably be enforced on cigarette and caffeine purchases albeit with reasonable accommodation for consumer preferences. Special dispensation would be given to individuals recovering from dependency - whether physical or psychological - and methadone would remain available to recovering heroin addicts; although dependency on methadone itself would only generally be permitted as a long-term or permanent solution to heroin dependency in cases where the initial addiction preceded the onset of adulthood. The consumption of some but not all other recreational drugs would be permitted infrequently if at all. In the posited scenario there would be designated producers and vendors who would operate according to new license laws and would be required to dispense substances according to information contained on digitalised ration cards. If this sounds dystopian, it is worth considering how alcohol culture enables oblivion to be sought in lieu of reform to improve society. However, an alternative to legal restrictions could exist in the form of greater discussion about the moral or psychological effects as well as the physical effects of recreational drug use. It follows that where there is cognisance of society's deficiencies, there is the temptation to take the most convenient method of escape. Of the drug problem in Bangladesh, one writer writes, 'As drug trafficking is destroying our youth, we are losing the potential leaders who could have been produced from our schools, colleges and universities'.⁴⁸

Chapter V: Mental Health

Schizophrenia

According to the medical model of mental illness, individuals identified as being mentally ill are considered to be under the influence of a condition which cannot be mitigated save by medical intervention. The medical model of mental illness offers alleviation of responsibility for the decisions made by people deemed to be mentally ill, but in doing so is prone to the criticism that were it not for subjects being prevented from owning the consequences of their actions, they could attain the greater self-knowledge and self-control necessary to implement the actions and attitudes which are necessary to assert their position in society. According to the social model of mental illness, deviance can be ascribed to a defective standard rather than any defect intrinsic to the sufferer's mind; in this way distress and distraction may be viewed as symptoms of demoralisation arising from the struggle against social norms perhaps less reminiscent of truth than the values of the people deemed mentally ill.

While a psychiatric condition is considered as a separate entity to the individual, actions against the supposed rogue element are vindicated though in reality no such demarcation can be neatly drawn between the individual and their condition; the true personality of the patient may be embroiled in the 'excision'. As David Cooper points out, the patient 'is reified to become the object in which the disease-process works itself out' while the reluctance to and impossibility of some patients finding a common language with clinicians is interpreted as a failure of the patient's ability or motivation to talk about their condition.¹ This allows the supplanting of so-called positive symptoms by the chemically-assisted enforcement of views psychiatrists represent on behalf of society and prevailing political trends.

People who have been diagnosed with schizophrenia and who disclose their experiences through official channels are more likely to express attitudes and opinions which concur with those of mental health professionals. It is likely to be those patients who are willing to render the views of psychiatrists and their staff who are lauded for demonstrating 'insight into their condition', though they may neither be representative of those diagnosed with the condition nor especially perspicacious. Furthermore, if the patient has absorbed the views of professionals into a dissociated self which refers to their own self in the third-person, they are evidencing morbidity in the very act of compliance. Nonetheless the testimonies of patients willing to write about their treatment in positive terms are likely to receive more exposure and corroborate formal attitudes about the condition.

As an academic discipline psychology is concerned with precepts and formal instruction, and while an eagerness to learn indicates humility on the part of a would-be practitioner, an intuitive understanding of unusual people is also important for treating patients with discretion and avoiding their objectification, which can take the form of caring professionals eliciting situations where caring instincts can be discharged and a condition of dependency wished for on the patient's behalf. Given the requirement for a clinician to assimilate a diagnostic framework into their own intellectual frame of reference, there is the

danger that any slight to the clinician's desire to dispense sympathy could be taken as an affront to the norms their professional interests are associated with.

There is an exclusion in the DSM-IV diagnostic criteria for schizophrenia that the disturbance cannot be due to the direct physiological effects of a substance, but in a study of functional and organic psychosis, Dilsaver considers that the exclusion on the basis of organic causes extends 'to structural defects or physiologic dysfunction of the brain'.^{2,3} If indeed schizophrenia cannot be assigned to anything palpably neuropathological then it follows that it must be a functional disorder, which can perhaps best be explained with recourse to narrative rather than physical phenomena. Narrative can show us that in view of the likely consequences of a diagnosis of schizophrenia, an individual's fear, suspicion and anxiety may be heightened: the strategy of 'early intervention', which might one day involve the covert surveillance of individuals with a predisposition to the condition known as schizophrenia, is likely to precipitate anxiety which would actually validate the vulnerable individual's suspicions of being watched or followed. In this way a clinician's anticipation of psychotic behaviour can be self-fulfilling. That such intrusion is viewed as 'persecution' is completely natural, and whether or not the patient knows that the form they believe the persecution takes may be a metaphor, cognisance of the distinction between the metaphorical and the literal may not be of paramount importance; the withdrawal of the schizoid person cannot be isolated from the fact of their being presented with an existential threat, either directly from the psychiatrist or from the world which is revealed as hostile by virtue of the fact it embodies the norms from which the psychiatrist draws his or her authority.

Authorities might conceivably attempt to avoid the problem of parallax—where the act of observation affects an investigation—by monitoring the would-be patient in their ordinary life, perhaps by accosting the client as an ordinary citizen and performing an informal assessment in that manner. Perhaps where resources permit the individual could be followed, not too closely and not too extensively but enough perhaps to gain an impression of the patient's behaviour from the vantage point of anonymity. Here however, there is still the possibility that the conduct of the undercover clinician may give away their identity, and if the would-be patient lets on that the manner of the clinician is sufficiently reminiscent of the establishment they represent to make the clinician identifiable, this affront might be most palatable to the clinician whilst 'sublimated' as an affront to the norms the clinician represents: those of the society the would-be patient is being cast as a deviant in. Even without this kind of sublimation, enforcers may be under pressure to justify their role, and this pressure may be relieved by interpreting their communication with the would-be patient in such a way as to overstate the risk of allowing the individual to go unmolested. Perhaps to alleviate the guilt of molesting someone without just cause, guilt would be projected onto the patient. To assist the reification of the molested party's guilt, known stressors may be implanted into the would-be patient's environment to entrap them by the creation of a 'perfect storm' – a provocative assemblage of artefacts which bear no relation to circumstances encountered in the ordinary course of life, and as such provide no reliable indication of the pursued party's likely behaviour. In this scenario the subjectivity employed to judge the patient's condition, being at the patient's risk, is deemed acceptable, but even a modicum of discretion exercised to challenge the viability of the individual as a target, by for instance putting less justifiable elements of their behaviour down to immaturity, is deemed

unacceptable. In another situation the prioritisation of public welfare over individual liberty might be acceptable but in the scenario presented it is clearly operating misguidedly if not with outright cynicism: as David Cooper states, 'human groups are formed in relation to some real or illusory menace outside the group, but as this external menace becomes more remote, the group... is faced with the necessity to reinvent fear to ensure its own permanence'.⁴ See also Chapter XII.

In his acclaimed and influential work 'The Divided Self', RD Laing states that 'no psychopathological theory is entirely able to surmount the distortion of the person imposed by its own premises even though it may seek to deny these very premises'.⁵ Unlike other sciences, in psychology the perspective of the observer can never be neutral. The act of measuring biases the outcome of an investigation because where any likeness between the patient and observer is perceived by the observer the observer is liable to identify elements of the patient's persona by referring to the observer's own characteristics. Alternatively if the behaviour of the client is such that no resemblance exists, the observer must rely upon the inferences of others, each of whose insight is prone to the above-mentioned limitations of subjective analyses. And not only is it impossible to achieve a consensus about the behaviour exhibited by the patient but it is impossible to take the behaviour out of the precise context. In this way the investigation is not repeatable and is therefore scientifically unsound. Even in the absence of an explicit explanation as to the nature of the enquiry the patient will be prone to a plethora of influences specific to that time which might influence his or her behaviour. Furthermore, the inferences drawn by the patient may affect the experiment. If the patient is aware of the probabilistic field in which he is situated, he is liable to behave in a way that undermines the calculations which inform expectations of his behaviour.⁶ The impossibility of a psychiatrist knowing all the factors which influence the patient's own behaviour and the impossibility of divorcing the patient from these factors renders any objective verification of a diagnosis impossible. Another complication is that the patient, perhaps exercising the heightened awareness of others' intentions in accordance with the obfuscation of personal boundaries associated with schizophrenia, may act to fulfil the wishes of the other party: the patient may intuit the desire of the psychiatrist to achieve a result and may orientate their behaviour or their disclosures to helping the psychiatrist achieve this. Conceivably this hyper-empathic faculty may also compromise the patient in the eyes of the law as the patient may act to fulfil the law-enforcers' desire to vindicate their enquiry by falsely confessing to a crime.

The interface between the consciousness of a patient treated for schizophrenia and the consciousness of others may be highly permeable. It may be possible for the patient to commit errors of identification through the assimilation of elements of foreign minds or simply the collective unconscious. Insights, expressed perhaps as allegories, may be relevant to another place or time yet are likely to be attributed to morbidity by clinicians. Scientists have found that schizophrenia is associated with an absence of 'corollary discharge'; that is, for individuals diagnosed with schizophrenia the message which accompanies one's own muscle movements for the purpose of distinguishing them from extraneous movements, is reduced.⁷ This provides an interesting insight into the perception of boundaries for people diagnosed with schizophrenia. If some experience their own actions as if they are issued by an external agency they are likely to consider their own actions more objectively; as far as

this extends to their thoughts, they are likely to have a greater understanding of routine mental processes which normal people are unaware of. Research has shown that the brains of affected individuals respond to incidental noise when people were talking: possibly the greater attention given to events which are insignificant to ordinary people indicates the presence of a certain form of intellectual curiosity. What is termed delusions of control is likely to be concurrent with the absence of corollary discharge; if 'schizophrenics' perceive their own actions as not their own then the actions of others will be felt no less as their own than their actual actions. As general hypersensitivity to one's own actions is likely to be associated with an outlook which appears over-cautious, this might help explain the presence of the negative symptoms of so-called schizophrenia. Interestingly, studies have shown that the presence of auditory hallucinations does not interfere substantially when tasks related to the articulatory loop were performed, tasks which test working memory. Whether this is due to habituation or the presence of distinct faculties is unclear but regardless, it would appear that auditory hallucinations need not necessarily impair functionality.⁸ The errors of identification perpetrated by people diagnosed with schizophrenia form the basis of delusions of reference and passivity experiences; by not observing inter-personal boundaries of consciousness so stringently, the reality of vicarious experience is reinforced. It is perhaps by virtue of this sensitivity that the outward appearance of torpor is expedient. To guard against this it is important that people who have a permeable consciousness and a delicate social interface are not over-exposed to influences which they find distasteful.

While advertisers promulgate 'mass psychosis' by deliberately implanting associations between impulses and emotions and their products or their information, the so-called schizophrenic's organic assimilation of prevailing attitudes and ideas has the advantage of not being unadulterated by authorial bias. The errors of identification of the schizophrenic makes them a conduit for and a living representation of, atmospheric conditions. In one account a man's preoccupation with spiritualism is described as being 'not something which would have been expected in his cultural context but it could not unequivocally be said to be abnormal'.⁹ In order to be qualified to approve a comprehensive range of interests that might arise with legitimacy in any given cultural context, there is not only the assumption that psychiatry has conversance with all manifestations of culture that might possibly arise in any time or place as well as all the enquiries that these manifestations might give rise to, but an exclusive claim to an authentic understanding of life is arrogated to culture even though culture can only be availed of what human activity and understanding it incorporates during a tenure which in terms of the history of humanity, is short.

It has been observed that the average IQ of individuals who are identified as being schizophrenic is significantly below average, but IQ (see Chapter II: Schools) like schizophrenia is to some degree a cultural phenomenon; therefore if people judged to have schizophrenia are recognised as such because they are poorly adapted to the prevailing culture, this is likely to be reflected in the IQ performance of the cohort. It is not a revelation that, in general, people whose minds have been proven not to operate in a way which is logical more often than not fail tests which are designed to measure logic. Furthermore, it is likely that those individuals whose use of non-orthodox reasoning is accompanied by the capacity to reason in an orthodox manner will be able to integrate into society more successfully: their impaired ability to function, due to the commitments associated with their

non-orthodox reasoning, will be offset by sufficient inclination or capacity to think in a more customary fashion at the same time. The unusual reasoning exhibited by these individuals is less likely to attract a diagnosis of schizophrenia. For 'schizophrenics', the specific capacity of mind which is measured by IQ tests is not representative of their higher consciousness so the fact it has been proven that antipsychotic medication is not associated with 'impaired' IQ is not proof that antipsychotic medication does not attenuate the higher faculties of the mind.¹⁰ Antipsychotic medication operates by blocking dopamine receptors yet it hasn't been proven that dopamine levels among people diagnosed with schizophrenia are consistently abnormal. The fact that symptoms of schizophrenia are not specifically related to dopamine but that a reduction in dopamine reduces positive symptoms suggests that antipsychotics attenuate consciousness in a general way. There is no way of disproving that it is schizophrenia rather than antipsychotic medication which results in brain loss because the belief in the efficacy of antipsychotic medication is so entrenched that to conduct an experiment with controls would be considered unethical. However, there is proof that some antipsychotic medications cause brain loss.¹¹

Research in Israel among adolescents preparing to enter military service has shown that those who went on to develop schizophrenia scored on average five points lower than average in IQ tests while those who already had a diagnosis of schizophrenia scored on average fifteen points lower.¹² It would be deduced from these results that the level of mental functioning in schizophrenia corresponds to the progress of the condition and that the statistics provide evidence that schizophrenia is a degenerative condition. However, individuals who have received a diagnosis before the age of sixteen or seventeen are likely to be more exceptional cases and their lower IQ score is likely to reveal the absence of protective factors in the form of a disinclination for traditional learning. Their more unusual mode of reasoning would be likely to make their peculiarities conspicuous.

People with schizophrenia are said to lack executive functionality which is often tested by the use of strategy in verbal fluency. However, the deficit people diagnosed with schizophrenia demonstrate in these tests may actually reveal a kind of strength. It is possible that an individual without the conditioning to function in a competitive society might feel an instinctive aversion to approaching a test strategically. While the fact that the prospect of financial reward was not shown to improve performance in traditional tests of executive functionality may discredit lack of will as a direct explanation for poor results, the possibility remains that their conditioning has availed them of an unusual and more elusive kind of resourcefulness. It doesn't necessarily stand to reason that there is an executive 'compartment' which is lacking in people with schizophrenia and perhaps in general it is a mistake to apply a specific ontology to the physical constitution of the brain. It may be more apt to say that pragmatism is the skill which is required to succeed in executive ability tests because an individual who is more idealistic might diligently set about completing a task they have begun for the sake of form, though they may score more points by applying their attention more discursively. The reduced frontal lobe activity observed during tests for executive functionality might just indicate that the tests were not engaging for the patients. Because events which are engaging for people who are withdrawn from society may be associated with memories seemingly accessed at random, or may take the form of events in the present time which pass unnoticed by other people, it is very difficult to 'stage' an event

which would stimulate the interest of the patient or would-be patient. Lack of engagement with the present moment can be likened to a shift from absorption to analysis, and stimulus might be resisted so impressions can be refined. Morel coined 'démence précoce' 'the end of his intellectual life that he can control'.¹³ But by restricting oneself increasingly to impressions which have already been received, there may be more control; it may be that the process of taking on information has reached a natural conclusion and that embellishing known information with meaning is paramount. As the contemplation of impressions already received is not accompanied by any obvious exertion, the subject may display the outward signs of stupor whilst all the while new applications and arcane associations are being found to lend relevance to erstwhile abstract or trivial information. However, because these exertions are inscrutable they may attract pejorative judgements, particularly if the patient shows positive contempt for learning.

A study in 2001 showed that relatives of people with schizophrenia generally perform better at accepted indices of intellectual attainment including maths, authorship and school attainment.¹⁴ As intellectual ability is substantially hereditary, it is therefore likely that in a certain sense intellectual ability among people diagnosed with schizophrenia is actually higher than average. That high intellectual ability and schizophrenia would appear to arise from the same alleles discredits the search for specific genes which could justify reference to the condition as a discrete phenomenon. Indeed none of the several genes which have been linked to the condition are 'necessary or sufficient to cause schizophrenia'.¹⁵

The ability to record creative associations in a publishable format may be consistent with a higher level of a certain type of executive functionality than people diagnosed with schizophrenia commonly possess: that is, formal publication requires an array of skills that may not co-exist with a strong inclination for raw creative associations. It would therefore be expedient for people diagnosed with schizophrenia to collaborate with people who can faithfully render the proceeds of their cogitations, ideally in a non-clinical environment. This exercise could help people with the label of schizophrenia contribute substantially to the fabric of society whilst being of therapeutic value to the patient: once a vision or impression has been accurately rendered, what piece of it is sustained by conscious effort might be excised. In this way the positive symptoms of the person said to be suffering from schizophrenia could be moderated. However for the purpose of moderating positive symptoms it is crucial that there are provisions for like-minded individuals to commune in non-clinical settings. In many cases the voices heard by people with schizophrenia may be the product of loneliness and serve as a substitute for companionship.

Research has shown that the severity of symptoms experienced by those diagnosed with schizophrenia in the community is no less than the severity of both positive and negative symptoms demonstrated by patients who continue in hospital.¹⁶ If from this it is surmised that the external environment of patients has little bearing on their condition, it is likely that intervention will be concentrated in the form of adjusting patients' brain chemistry. However the appearance of it all being the same to those diagnosed with schizophrenia might be explained by the presence of common features between an institution and the community. Both settings may be experienced as redundant of purpose and pervaded by the same orthodoxy of reasoning which is inimical to a more radical outlook, and in both settings a large part of human interactions are likely to take the form of interactions with people who

may not understand the patient's point of view, whether it be healthcare professionals or the general public. Interactions with other patients who are sadly compromised by medication are also unlikely to be fulfilling. It isn't possible to exercise true sympathy and improve conditions for patients until either the social norms against which deviance is measured are challenged or deviancy is at considered more as divergence. There may be such a thing as objective insanity but the various forms of irrationality which are culturally extant disqualify proponents of cultural and social norms from distinguishing between madness and radical sanity.

As a result of under-stimulation an individual with an active and impressionable mind may experience hallucinations which either arise organically or by drug-taking (see Chapter IV: Cannabis and Schizophrenia). Fantasies might take the place of an appreciation of everyday life because everyday life provides no opportunity for the individual's imaginative faculty to be exercised. Where a retreat into fantasies has no functional purpose the cost may be considerable in economic terms, but still a society which routinely designates roles which require imagination to more practical people or else makes imaginative roles redundant entirely, is culpable to some degree. Perhaps it is partly for this reason that while Britain had the fastest growing economy among the G7 nations for the three years up to 2015, its productivity is 21% lower than the average among these nations.¹⁷

For all the ways in which madness can be mistakenly identified, sometimes it is useful to speak of it as something palpable. It is well known that traumatic emotional events create stress which can cause people to regress to an earlier stage of emotional development. However the attribution of significance to events which are objectively understood as stressful is not always helpful in establishing the likelihood of illness having its origin in particular circumstances. This is because people engage with their environment in different ways and different events mean different things to different people. Furthermore, the relationship between the circumstances of an individual's life and their constitution may be complicated by the fact that the effect of stress is cumulative. That the onset of schizophrenic symptoms usually occurs in adolescence or early adulthood suggests that affected individuals struggle with the adoption of accepted adult responsibilities; that the mind perceives these as so inimical to its proper function that withdrawal from everyday reality is perceived as imperative. What arises from the clash between the self of the exceptional person and mass culture depends upon the degree of divergence between the two entities and the resilience of the individual concerned.

Although it may be possible to find features in the brain chemistry of affected individuals which are congenital, it doesn't follow that these features would not also be present among the general population. Indeed, as suggested by research among relatives, the very genes or group of genes which indicate the possibility of schizophrenia may also suggest the possibility of genius. The identification of genes related to 'schizophrenia' for the purposes of early intervention is crude in a similar way to antipsychotic medication. Also, as it is widely accepted that schizophrenia can be linked back to past events in an individual's life then it would be mistaken to suggest that parents can have no bearing on the development of the disease.¹⁸ Of course the efforts of parents who are challenged by the tendencies of an unusual child should be commended but ignoring the role of parents prevents sufficient stress being given to the child's background when appropriate treatment is decided on, and gives

the wrong message to parents who may still be able to help their child. However, it has been suggested that people diagnosed with schizophrenia experience Capgras syndrome, where a familiar person is recognised but their presence doesn't elicit the wanted emotional response.¹⁹ Although the cause of Capgras syndrome is attributed to changes in brain chemistry it is possible that these changes are the result of the diminished emotional response consequent to the changes undergone by the individual; changes which force the individual to re-appraise their relationship with people they felt close to at a former time. This may limit the influence a parent can exert on a child experiencing symptoms of schizophrenia.

Ontological Insecurity

Laing states that an 'ontologically insecure person is preoccupied with preserving rather than gratifying himself (by relating to others): the ordinary circumstances of living threaten his low threshold of security'.²⁰ The variance between child and parent which might arise either by the child's upbringing, by the parent's identity being decoupled from their genetic legacy (see Chapter II: School Entry) or even by genetic mutation, may force the creation of a more discrete ontology for the child. The impossibility of a parent instilling the child with ontological security at an early age may force the child to forge their own identity more deliberately than would be the case when the basis of it is a mother's expression of amenability and unconditional love. Where the patient's ontology is a product of deliberate effort rather than of conditioning, their ontology, being customised, may be more coherent than mass consciousness, the wellspring of ordinary ontological security. Indeed, when one considers the importance of developing habits of self-regulation and a sense of existential adaptability in the face of one's own potential for evil and self-deception, a sense of identity which is inviolate can be seen as a dangerous commodity. In many cases someone whose early development hasn't bestowed upon them ontological security will be able to discriminate between the influences they are conditioned by: to discursively choose putative parents perhaps who, despite their remoteness, may provide a more suitable ontology.

Difficulties experienced in early years tend to create a pattern of incongruence with the wider world, which arise due to a large amount of what Freud described as 'id'. If the crude elements of selfhood cannot be safely channelled into the dynamics of the family home at an early age, the id is likely to survive in its original form. Additionally or alternatively, the origins of enhanced id can be genetic. The subsequent difficulties of people with great primal energy arise because they have more irrational impulses to rationalise but do not necessarily have the resources available to achieve rationality. Even where the excess of id is not positively caused by parental intransigence, parents may not have a complex enough understanding of the child or of the world to provide the necessary discipline and education to constructively direct the child's impulses. At the present time the difference in circumstances between generations is such that even parents and teachers may not be able to envisage the skills which would be necessary to ensure that the best efforts of the spirited individual are realised. The would-be mental patient who is without guidance but is faced with the impossibility of satiating his own desire for expression, may be forced to operate in

the realm of delusions, should he not have the wherewithal to effectively sublimate his desires.

It is likely to be those parents whose own proclivities cannot be accommodated in normal society and whose own adherence to behavioural norms has involved crippling condescension, who are more likely to produce children with similarly incongruent natures. Whilst projecting onto their child the incongruence they perceive in themselves and projecting onto the family unit all the alienation which they experience in the wider world, such parents may perceive their particular form of discipline as salutary. As far as their dysfunctionality is inheritable, children of this kind of parents may either repress their incongruity in a like manner or break their conditioning and achieve operational autonomy. Individuals who achieve operational autonomy in this way may be more capable of autonomy than those bred for ruling-class characteristics, though tragically their proclivities are unlikely to be as well respected. Although those people who are bred for autonomy may have parents who are sufficiently detached from mass culture to be able to objectify and dismiss it, the ontological security arising thus may be too complacent to expose the consciousness of the child to the real challenges of the time. Where there is an existential imperative there is determination, and for the individual whose discrete ontology has been enforced, mediocrity is never good enough, not even in the home.

David Cooper defines schizophrenia as ‘a micro-social crisis situation in which the acts and experiences of a certain person are invalidated by others for certain intelligible cultural and micro-cultural (usually familial) reasons’.²¹ Even if parents who are intrinsically incongruent with society are conscious of their surrender, having surrendered to social norms they must summon esteem for the system they thenceforth abide by in order to validate their existence post-surrender. It is perhaps then not fair to cast the alienation the child experiences in such a family home as a malign act. On a conscious level, estranging the child in the same way they have been estranged might be viewed as a form of bonding: by treating a child according to the treatment the parent has received, the child is invited to partake in his parents’ experience of life, their ‘wisdom’. However, because the impassive conduct of this type of parent in the early years of a child’s development will lead to an urgency in the child’s existential forays which is not perhaps conducive to the mindless reiteration of cultural norms, tension arises between the aspirations of the ontologically insecure child and the unjustifiable cultural norms which the parents adopt and enforce in the home environment. Being the weaker party, the child must make the outward appearance of conformity whilst being unable to still his or her existential pursuits. Though avenues for existential pursuits are apparently curtailed these must continue in his interior world, at a time perhaps when his or her experience is too limited to rationalise these abstract pursuits. It is natural that a ‘schizoid’ outlook arises from this impasse. No trust exists and neither, yet, does the capacity or inclination for condescension capable of admitting a less deliberated and therefore more chaotic world view. By virtue of the fact that the schizoid ontology is hatched later on in childhood, it is more precarious. It is like a waking dream, a vision which rather than residing in the unconscious mind away from scrutiny and danger, instead co-exists with daily events and represents the essence of a person held up to the light. If such a situation comes to pass when the child has verbal ability and is relatively self-aware, the ontology may assume the form of a narrative. But the fragility of it means the schizoid individual cannot

afford to relate to others in a normal manner. Though intricate, his or her frame of reference is highly permeable. The 'split' between mind and body which is an observed feature of the condition can be seen as an attempt to preserve the world of arcane associations from the corruptions of the body of the schizoid person which is of course prone to the same corruptions as other people.

This 'engulfment' experienced by the schizoid person whose selfhood is more fragile tends towards isolation and possibly delusions of grandeur. Upon being confronted with a stark choice between socialising according to custom and complete isolation, the 'schizoid' may deem that the latter—though not entirely concurrent with his or her predilection—is nonetheless more to his or her liking than the alternative. His or her isolation is perhaps made tolerable by over-estimating his or her capacity for self-sufficiency and perhaps by arrogating more autonomy to himself or herself than is appropriate. Having grown accustomed to this state of things the schizoid may find that, should it have been possible to find them, like-minded individuals who may have otherwise provided the basis for congenial friendship, now pose a threat to his or her illusion of immaculate autonomy. A lonely condition thus takes on elements of narcissism, which of course can fail to endear the patient to healthcare professionals. For these reasons, such individuals are liable to induce a fear of engulfment in others, both those of more open inclinations and those of their own ilk. As the loneliness of the schizoid person increases, so do their needs and their tendency to consider the other less in terms of their attributes and more in terms of their propensity to fulfil the schizoid person's needs. Eventually in their loneliness, the schizoid person may speak on behalf of that hypothetical other to extemporise a source of reassurance and gratification within themselves. Likewise, in the absence of appreciation for their efforts which though perhaps substantial are nonetheless likely to be abstract in effect, approbation may be sought desperately and in its absence, fabricated. The embellishments of one's internal ecology in a state of chronic loneliness are so delicate that the retraction of love, as is wont within a culture of discursive attachments, may pose such an existential threat that standard participation in the world of intimate relationships is impossible: the convention of discursive partnerships makes relationships appear as volatile prospects; moreover expectations are increasingly determined by first impressions which favour more extroverted or more stylish people. Freud attributed the phenomena of delusions of reference to narcissism, but far from being the projection of one's self-love onto another; delusions of reference may actually arise from a need for love which is rendered sincere by the chastening experience of loneliness. It may be that the modern conception of a relationship where the attachments are more fleeting and the partner is more interchangeable is more objectifying than the romantic ideal of someone in a deprived condition who seeks a relationship which addresses their ontological needs as well as their desires.

The fabrication of love for oneself on behalf of another is a survival strategy which is such precisely because self-love is not enough for the individual. It is similar to how homosexuality might arise out of the object of one's affection being inaccessible, but so needed that their presence is fabricated within the self, or rather a proxy for the self. Delusions of reference can also arise out of the individual's need for regard: the need for reciprocity to the social impulses which lurk behind the interface which is forced into redundancy. Similarly, delusions of grandeur are likely to arise when ambition is stultified:

when no avenue is available to express peculiar insights. In the absence of opportunities for expression affected individuals must content themselves with achievements which are not palpable.

With a more hard-fought sense of inner peace, the stakes for maintaining proper conduct are inevitably higher. The schizoid person thus—in the true sense of the word—*sublimates* aspects of himself which in the more ontologically secure person are merely repressed; for while the ontologically secure person's unconditional self-love might permit the perpetration of any act taken in self-interest, self-esteem which is more fragile might only be sustained on the condition of exercising proper conduct. In this way ontological insecurity might act as a safeguard against committing violence against people for whom the would-be perpetrator has no spontaneous sympathy. The non-schizoid person may be seen to exercise a greater degree of empathy and sympathy, but this might merely be due to being surrounded by people with whom he or she feels kinship. Without this kinship, there may be nothing to restrain him or her from acting violently, particularly if that violence is enshrined in law.

The absence of sympathy at large for people with more independent values results in the objectification of schizoid people and further compounds schizoid tendencies. The highly subjective inner world of the schizoid person which is already likely to be vulnerable or highly permeable according to their early experiences and/or their predisposition to mutability, is thereby made subject to the corrosive influences of those whose freedom is not only at variance with their own but is sanctioned by the mandate of mass culture. Given sufficient exposure and sufficient rigour this corrosive presence is liable to be absorbed and form an intrinsic component of the schizoid's mind—a 'voice'. That the presence of such a voice is used to indict the schizoid person is a travesty—their sanity is censured for having accommodated the censure of the mass culture the critic represents.

Being constantly confronted with a perception of their own inadequacy a person may feel it incumbent on them to contrive a false self. This necessity is compounded the more a sense of alienation demoralises them and saps their resistance against practising habits which contribute to their low self-esteem: habits which can only be disowned by ascribing them to a separate agency (see also Chapter IV: Therapeutic Approaches). As RD Laing writes, many schizoid people develop a false self to interpose between themselves and society, one which is compulsively compliant to the will of others.²² This false self enables a besieged individual to keep potentially harmful influences at arms' length: to despatch an artificial identity to engage with the other person on the other person's terms, it not being possible to communicate on their own terms at all. Far from being evidence of aloofness, this interposing false-self reveals a capacity to empathise which is not present in the other party, but so invalid is the world view of the schizoid person considered to be that no value is ascribed to their diplomacy. RD Laing states that the 'reality of the physical world and other persons cease to be used as a pabulum for the creative imagination' and that 'fantasy needs to be embodied in reality or enriched by it'.²³ This belief ignores the fact that the interface between the schizoid person and the world, as shown by the absence of corollary discharge observed among schizophrenics, is strange but true and what may seem a degree of contact with the rest of the world which is not sufficient to validate deductive reasoning and the poetic associations born of the schizoid mind is perhaps—given the permeability of the conscious interface of these people—sufficient: any more stimulus might result in derangement. While

RD Laing is sympathetic, his theories of 'The Divided Self' still operate around Kraepelin's core assumption that schizophrenia heralds the destruction of personality. But it isn't true that one destroys oneself in act of designating a proxy self to address hostile agencies. Certainly, little of tangible efficacy can be observed to issue from the mind of someone who is to all appearances vegetative but the impossibility of rendering the products of their imagination for any obvious purpose does not preclude the possibility that non-clinical relationships presented in clearly mutually beneficial terms could over time impress on the patient the possibility of avowing the illusory nature of their accustomed outlets of expression, and encourage them to co-operate with non-clinical persons to render their insights in a different manner. RD Laing justifies his theory of a 'deterioration' of mind by stating that the 'deed is realisation of intention' and that individuality entails 'commitment to the objective element'.²⁴ But as well as positive action a large degree of deliberation and impartiality are required to attain a state of committed being and objectivity, or else the commitment will be simply arbitrary and ill-considered and not a reflection of one's true intention at all. An intuitive understanding of life may require less in the way of action but of course it does require more than none at all lest the schizophrenic becomes anyone in fantasy and no-one in reality.

The individual who believes that traditional religions provide little opportunity to serve God in a way which befits the needs of society today and who undertakes to serve God independently albeit still in accordance with the promptings of his or her conscience, is likely to find his or her efforts going unrecognised, and is perhaps likely to attract the criticism of uncomprehending authorities who may be suspicious of lone activity; as well as the criticism of those who may consider the articles of his or her faith as the paraphernalia of an antiquated religious paradigm. In order to trace the manifestations of God, the religious life demands the renunciation of cultural norms which are not enduring, setting less value by the approbation of other people, and disbursing legacy in a more general and remote sense. If for instance, by their lonely path, a person erroneously believes themselves to be Jesus Christ their actions may yet be sufficiently reminiscent of the actions of Jesus that within the context of the micro-society they occupy, their role of Jesus Christ is tenable. That they cannot perceive that they are not Jesus Christ in the sense that they will never influence the population at large in the same way Jesus did reveals an error of judgement as to proportion, which may or may not decisively affect their functionality.

The Politics of Empathy

For people at the low end of the normal distribution curve of empathy other people may be viewed as objects. However, within the massive infrastructures of the modern world a systemic view of humankind is useful for the execution of many administrative and scientific functions. Just as how empathy is the catalyst for interpersonal harmony, systematic thinking is the catalyst for social order. For those people in positions of responsibility, a more detached response allows for discrimination between needs presented in different times and places, as opposed to needs presented in the here and now. Where there is a conflict of interest between two people operating with a high level of empathy and conscientiousness,

the individual with stronger feelings or convictions about a particular issue would be deferred to; but if the strength of feeling or conviction is accompanied by a superior degree of empathy, should the more righteous claim issue from the more empathic party, it might be neglected, which would be injudicious. Also, if the empath feels themselves constantly at the mercy of other's needs, their own needs may be addressed peremptorily and with intensity in the brief window of opportunity in which their affective empathy is suspended. This entails the possibility of violence, albeit possibly in the form of passive-aggression.

At the beginning of *Zero Degrees Of Empathy*, Simon Baron-Cohen talks about the Holocaust and the reader can infer that through his work the author wishes to help guard against the reoccurrence of a similar catastrophe.²⁵ Clearly this is a commendable ambition and much of the book is enlightening. However, it should be remembered that genocidal regimes typically gain support by systematically identifying a common enemy to humanity, and the author's formulation of a spectrum of pre-determined characteristics complete with value judgements represents the very kind of systematic demonisation which is warned against at the outset. He posits that people with 'zero negative' traits—low affective empathy—fail to appreciate the subjective reality of other people, and proposes a crude formulation to establish the degeneracy of such individuals.

The suffering caused by the Holocaust was of a much greater magnitude than the actions which the perpetrators sought to avenge, and while it may be instructive to investigate the contention of many Germans between the world wars that Jews had been withholding affective empathy for the non-Jewish population, the aloofness of the Jewish people must be understood as a consequence of the contempt which their distinct religious and cultural practices gave rise to; a contempt which was consolidated by Jews gaining wealth as merchants, usurers and middlemen in Central Europe, and thus remaining relatively unscathed through the famines which periodically ravaged Europe; even though such roles were taken by Jews in the first place out of necessity, owing to their marginalisation; moreover Gentiles were not forced to take loans from Jews, any more than Gentiles were forced not to issue interest-free loans to each other. Sympathy with the conditions of German citizens whose poverty and cultural decline the Jews were perceived to have been partly responsible for, was a form of affective empathy of which the lack of compassion which determined the German attitude to Jews was the obverse. Today the danger is that inhumane treatment will be similarly justified by drawing a demarcation between laudable and dysfunctional members of society.

If an individual is in a depressed condition it is natural to expect less of him or her in terms of consideration for others. His or her sympathy or affective empathy is liable to give way to what he or she would perceive as a more urgent need, and few would attribute the increased attention to his or her own needs as a sign of psychopathy. Just as when the freedom to purchase a certain modern convenience is weighed against the basic survival needs of another, the survival needs of the other are paramount; someone who is severely depressed may be excused for not prioritising social customs such as observing niceties with people to whom the depressed person may only be a peripheral figure anyway. The same dispensation should be extended to those who by virtue of their distinctiveness rather than any negative trait lack a shared frame of cultural reference with ordinary people and are thus prevented from participating in shared experiences, the discussion of which is often mistaken

for evidence of empathy. It is the fact of marginalised individuals being in a minority which deprives them of parity in social terms rather than dysfunction per se. The fact that marginalised individuals often engage more effectively with other marginalised people than ordinary people suggests that it is wrong to speak in absolute terms about superior empathy. The impression that empathy is an entity in itself which can be exercised irrespective of the subject is erroneous and has arisen because mass culture is prevalent enough to more often than not constitute a common point of access in the formation of relationships. The probability of a randomly selected individual in any given culture having similar life experiences and cultural references to another randomly selected individual is sufficiently high for their ability to achieve rapport and anticipate the other's thoughts to require little else other than consulting their own thoughts and feelings. Furthermore, the affective empathy which ensues is testament to kinship, the phenomena of 'looking after your own' which is not even exclusive to human beings. That the manners and values of another person seem foreign to another is not by itself proof of a failing on the part of either party. Empathy beyond the principle of 'doing for another what you would do for yourself' requires life experience and often deliberate effort. With life experience which confronts a person with perspectives at variance with their own an individual's notional empathy is likely to be enhanced.

The amount of sympathy which is dispensed in any situation is likely to be determined to some degree by the petitioned party's experience of suffering relative to the claimant. Some degree of imperviousness to distress which is born of remediable weakness is salutary because the expectation of sympathy for the alleviation of distress which is mild is a form of greed if the dispensation of sympathy to the claimant would prevent the more pressing needs of others from being fulfilled. It is important in tough times to appreciate the value of cool, hard heads—the attitudes of people for whom the dispensation of concern is a more deliberate affair. Through residing in an environment in which instances of direct personal evils are more prevalent, a more comprehensive moral code can be developed which permits the lesser of two evils to be discretely discerned, when such recognition is necessary. Also, the sympathy of a person who is sheltered from suffering may not necessarily be more forthcoming: through having little experience of suffering, the sheltered person may not be able to imagine the suffering a distressing event gives rise to. If the experience of suffering is merely vicarious as in the case of children exposed to scenes of violence on entertainment media, they may be de-sensitised just as surely as children exposed to actual hardship but without acquiring any cognitive empathy as a result.

The quality of toughness among so-called psychopaths is not only revealed by their unresponsiveness to the suffering of others but also by a resignation to their own suffering, as revealed by the lack of fear of punishment which has been shown to exist among people believed to be psychopathic.²⁶ This negative reciprocity is significant and should inhibit general value judgements of tough people. It has also been observed that psychopaths tend to interpret hostile intent in ambiguous statements more than other people.²⁷ The expectation of a threat suggests that the so-called psychopath is a person who has been conditioned to expect hostility, and its formulation as a symptom perhaps conveniently provides immunity to anyone wishing to persist with a regime of passive-aggression.

A study found that people with damage to the orbitofrontal cortex or ventromedial prefrontal cortex are more likely to judge it morally acceptable to be personally involved in

killing one person in order to save the lives of five others whereas other people would not.²⁸ Because the subject is in closer proximity to the single individual who is to be killed, the suffering of this person to a normal observer would be much more real than the others. However it would be wrong to necessarily condemn a strictly utilitarian approach in this situation. Although distasteful perhaps, it is precisely this principle of serving the greater good which has influenced the instigation of many so-called just wars and soldiers in these wars acting on behalf of utilitarian judgements have been heralded as heroes. Indeed in 2011 one of the entry questions for Eton school where nineteen of the fifty-three UK prime ministers to date have been educated asks thirteen year-old candidates to justify the army shooting dead twenty-five protestors as a 'necessary and moral' decision.²⁹ Proponents of this type of activity would argue that the end can justify the means; indeed, the motto of the Special Demonstration Squad formed by the Metropolitan Police in 1968 to spy on environmentalists, left-wing intellectuals and animal rights activists is 'by any means necessary'. The rationale and methods of this group are discussed at length in Chapter Twelve. It is important to remember that often the end will be judged by how it is realised: the nobility of a cause is necessarily impaired if its realisation necessitates the employment of ignoble means. However, equating concern with the 'greater good' to innate badness is a troubling conjecture which could see the good intentions of people with a social conscience being dismissed.

In *Zero Degrees of Empathy*, Baron-Cohen attempts to discredit the causal link between neglect or abuse and symptoms of the condition known as psychopathy by citing how many individuals he labels 'Type p' do not provide evidence of neglect while many who aren't 'Type p' do.³⁰ However, it is very difficult to measure the degree of hardship someone has experienced from the outward facts of their existence: neglect can take many forms, some of which may not be recognised by the participant and some of which may not be recognised by the therapist. It is of course likely that there is an acquired component to any psychological condition but because it is important to recognise the capacity for good in every unborn child, genetic testing for this condition and others which entail a pejorative judgement would be inhumane. Moreover, even as far as there is a genetic basis to the traits which an individual demonstrates, the presence of specific alleles cannot be made to neatly correspond to our discrete conception of human characteristics. With our understanding of the human genome being imperfect and being likely to remain so, it is dangerous to attribute certain characteristics to certain genes as if a characteristic inevitably ensues from the presence of a certain allele. Before a condition is traced and all the implications of anticipating its manifestations are set in motion, what is really signified by the condition must be understood. The consequences of early identification of genes associated with the outcome of psychopathy for instance are likely to subject the individual to suspicion and restriction which could expedite the influences which corrupt a distinguished nature and render its orientation amoral. Affective empathy is the volatile and mutable element of empathy so the fact that it is linked to genetics is initially puzzling. However if one considers that trauma or suffering is understood to be the prime factor in eroding empathy then it follows that the potential for low affective empathy can be predetermined insofar as the environment inhabited by the would-be psychopath is incongruous with their nature. Therefore because mass culture is at least as constant as the heritability of the condition, it can be surmised

that the common genetics of people displaying psychopathic traits does not necessarily detract from the potentiality of those with the genetic combinations linked to the condition. The more refined or sensitive a faculty is the more prone it is to impairment, and it may be that the difference between people who refrain from Machiavellian behaviour because of a code of honour or faith and people who do not, is slight. Gene-editing techniques used on embryos for the purpose of preventing the manifestation of undesirable characteristics may prove to be quite crude.

For unusual people, immersion in the environment of people who feel a limited affinity for them is likely to provoke a like response which may in time limit the inclination of the unusual person to apply empathy in general. Meanwhile the paucity of *congenial* human contact might result in neediness which obscures a view of the other in their real aspect, thereby making the other more like an object to the would-be problem person. This is why it is important that people who are unusual or extraordinary are not tempted towards cynicism unnecessarily by being identified by others as a malign object to be defended against 'by all means necessary'. Perhaps the correlation between genes and 'type p' characteristics is due to a particular quality whose negative manifestation is not predetermined but is rather precipitated by the tension between the social, cultural or behavioural norms and the person's own constitution. If this is so, the key to encouraging the positive manifestation of the subject's character is to consider their difference in terms of a divergence to be respected rather than deviance to be contained.

The Role of Genetics

As concrete entities, genes are a more convenient reference for traits than environmental influences which are multifarious and difficult to objectively discern: as Steven Pinker states in his work 'The Blank Slate', 'traits are poorly predicted by any measurable feature of the environment'.^{31 32} However, the fact that genes are a better predictor of traits than any *single* environmental feature doesn't make genes more influential than the environmental in its entirety. Genes determine how an individual interacts with the environment but have no objective reality until such time as environmental factors, which are both highly complex and ever-changing, give them a context to operate in. The work of tracing environmental influences may never be complete but may be undertaken more successfully if approached artistically rather than scientifically. Perhaps the presence of certain genes can be used to estimate the likelihood of different courses of action in a given situation, but just as narrative gives a better understanding of history than an account of past events in molecular terms, experience is surely a more comprehensive and refined way to explain human characteristics than a purely genetic account. The 'five factor model' expounds five dimensions used to describe the human personality and psyche, but does not substitute for an empirical understanding of human nature.³³ Moreover, by both identifying human traits as being indissoluble and assigning value judgements to them, scientists are firmly advocating artificial evolution according to ideals of their own which are necessarily subjective and epoch-specific.

The genetic inheritance of resistance to a certain disease would not confer advantages in terms of its impact on the ability of successive generations to survive: though it is possible the disease could reoccur, the elective pressure on metabolic efficiency, for instance, would be neutralised though this may be a more enduring advantage. Likewise, if the conditions in which a 'selection event' is staged are followed by conditions which are radically different, there may be a far lower number of adapted individuals than there would have been had the selection event not occurred. This is evolutionary regression. Selection on the basis of skills which are conducive to success within an unsustainable growth paradigm are similarly liable to render the next generation ill-adapted, in the broader sense, to subsequent epochs.

There is not a clear demarcation between exceptionally good and exceptionally bad people. The fact that the expectations of normal society are generally felt as incongruous by enigmatic people might be used by such a person to justify a nihilistic attitude which would entail preserving their advantages by violence; whereas the very same incongruence felt in a different situation or by a different person might compel someone to rise to the challenge and strive to change the world in a good way. Treating the tendency for someone's urges to be manifest in a certain way as a given objectifies the whole individual, when the desire from which criminal inclinations are derived may be amorphous and the whole destructive faculty but a single component of the person's character. As discussed earlier in the chapter, while it may be possible to prove an association between the presence of certain genes and a predisposition to criminal activity, the same genes expressed in a different situation may be a force for good. If social conservatism is excessive, the perceived cost of compromising those whose enigmatic natures compel primarily beneficial actions is likely to be exceeded by the perceived benefit of neutralising maleficent social factors. The suggestion that the presence of certain genes strongly predicts the outcome of psychopathy has arisen because scientists have sought causal links by working backwards from the supposed condition of psychopathy described rather than forward from the genes: that is, they don't entertain the possibility that individuals with seemingly unrelated traits might have more shared heritage than what is superficially apparent. The desire for responsibility is maligned, at least in the case of outsiders, and instead more domestic qualities are favoured. Cochran and Harpending observe this phenomenon thus: 'natural selection modified mechanisms active in children in ways that resulted in tamer adults, just as the behaviour of adult dogs often seem relatively juvenile in comparison with adult wolf behaviour'.³⁴

The distinction between proximate causes and ultimate causes is being widened through man's increasing inclination to 'play' at life. For instance, the modern notion of sex as a predominately recreational activity has come about because of the prevalence of contraceptives while the modern taste for low-calorie food is an example of a super-proximate cause trumping even a proximate one, the satiation of hunger. Over-abundance of food in areas of the world where modern science has sufficiently enhanced agricultural efficiency has led to the desire to satisfy taste taking precedence over the most fundamental of all hungers; furthermore while the social repercussions of substituting proximate causation for ultimate causation are arguably limited where sex is concerned, where food is concerned the super-proximate wants of the wealthy are overriding even the ultimate need of the poor, the need to eat enough to reproduce. These are two examples of how advances in technology have distorted the evolutionary trajectory of our species. That desires which supplant ultimate

well-being are positively encouraged in our culture is evidence of its unviability. When proximate acts are moderated to align with ultimate needs and the higher purpose of man, there is altruism through self-actualisation. Many more people now live in a society where basic needs can be sustained with minimal conflict or competition so more time can conceivably be invested in realising a higher purpose for the 'selfish' genes we have inherited. Their selfishness can be viewed as a necessary evil because of the altruistic possibilities realised by their replication. The evolutionary advantage of selfishness Richard Dawkins writes about may have been like armour to safeguard the transmission of important characteristics and thus realise the greater good of self-actualisation as it is manifest in subsequent generations.

Because competition can be senseless and ruthless it is perhaps necessary for the preservation of noble characteristics to be deliberately assisted. However, the very fact that such characteristics can be found intuitively attractive suggests that nobility does find favour with natural selection although without social structures to support a kind of aristocracy, a potential partner may find that the noble person is a compromised prospect according to the wants their noble nature prevents them from securing for the potential partner. Our society may seem sufficiently affluent that the economic advantages offered by a more successful person are only marginal, but the momentum of the force which has compelled humanity toward the affluence many of us enjoy is seemingly unstoppable despite the fact that the object which was sought has now been achieved, for many in the West at least. Perhaps this is because the genetic profile of the prominent part of the living population reflects the success of certain adaptations in achieving past objectives.

In defence of Richard Herrnstein's article 'IQ', in which the author envisions a 'hereditary, biological meritocracy' in a society free of 'artificial social and legal barriers', Steven Pinker makes IQ and economic success synonymous with talent and claims that Herrnstein's vision could only be false if people did not 'preferentially hire and trade with the talented'.^{35 36} In his book 'The Bell Curve', Herrnstein does not draw too much attention to the racial basis to IQ scores, saying 'the debate about whether and how much genes and environment have to do with ethnic differences remains unresolved'.³⁷ However, it remains possible that his research will contribute to an understanding of innate differences in average IQ between races, and the appropriation of IQ as a more-or-less universal indicator of worth is likely to encourage stark and linear value racial judgements. Essentially it is impossible for cognitive scientists to maintain a deterministic stance, uphold IQ as a universal indicator of ability *and* refrain from making value judgements about race: the degree of susceptibility to academic learning which would have to be present in order for the difference in average IQ between races to be explained by cultural factors is not compatible with a deterministic position. Pinker states that the stance against bigotry is 'a moral stance that condemns judging an individual according to the average traits of certain group to which the individual belongs'.³⁸ Yet even with a modicum of generalisation the racial basis to differences in IQ is hard to ignore. The only way to eliminate the bigotry is by questioning the universality of the IQ measure (see Chapter II: Schools).

As Darwin said 'If the misery of the poor be caused not by the laws of nature, but by our institutions, great is our sin'.³⁹ From our vantage point we see the process of evolution which has resulted in our existence as a linear progression, but it is possible that we ourselves

represent or might soon represent something which would be invisible to a more advanced species in the future—an evolutionary ‘false start’. Perhaps the best chance of survival for us is divesting ourselves of the illusion that progress constitutes continuing on our present path either evolutionarily or economically. By halting now it is possible that we might not go beyond the node from which true progress can be wrought.

Where diplomacy is infinite competition arising from the existence of finite resources could be neutralised with candid measures of each party’s needs. In this situation a moral code could certainly exist without acknowledging the soul of man, but just as both increases to the complexity and specialisation of economic activity result in a lower general understanding of the modern conveniences one lives among, the increased complexity of societies and the atomisation within them makes people more concerned with the superficial elements of human nature and heedless of the fundamental needs of people they live among. If the spiritual nature of man is dismissed, there is less being for man to enact justice upon and without a sense of man’s higher purpose, one is relatively free to relegate the interests of another and act upon selfish interests because it is impossible to scientifically chart a cause and effect relationship between the perpetration of evil actions and the visitation of consequences. An individual may prefer to dispense sympathy to another than to behave antagonistically but perhaps a sense of duty based on man’s unique capacity for honour is required whenever kind behaviour comes at a personal cost. Crucially, Western societies are founded on Judeo-Christian principles which upon being denuded of their central tenet of monotheism will likely tend to nihilism. However, rather than innate disdain for public-mindedness and altruism, non-compliance with an ethic of co-operation on the social level may indicate a perception of the impossibility of effective contribution and the impossibility of self-actualisation. This is the inverse of the Pygmalion effect.

Chapter VI: Hazards in Everyday Life

The Pharmaceutical Industry

When medicine is trialled, there are a number of ways that bias can be introduced or results can be presented which flatter drug companies' products: trial subjects can be chosen from a cohort who experience better general health than is experienced among those who would receive the drug under normal conditions, or drug companies may terminate trials prematurely in order to isolate and emphasise positive results. While this latter action may be appropriate if the medicine is so clearly efficacious that to continue the trial would be unnecessary and obstructive, instances where a drug's effectiveness can be verified with certainty before the trial is completed are rare. A study in 2010 which took one hundred truncated trials revealed that the usefulness of the treatments that were being tested were overstated by a quarter.¹ Moreover, there are other contrivances which occur at the trial stage. The impact of a drug's side-effects can be understated by failing to include 'drop-outs' in the results of trials, even though it is likely that a participant's premature withdrawal would be determined by the presence of side effects. Even the side effects of remaining participants may be understated if the method for recording side effects is chosen arbitrarily: the 'worst ever side-effect' method may flatter a trial in which there were several side effects which were equally uncomfortable. Another method which is commonly used by drug companies is switching primary outcomes or introducing primary outcomes which hadn't been pre-specified in order to align emerging patterns with professed expectations. By thus multiplying the measured outcomes, the threshold for statistical significance for any one of the outcomes is raised. A study in 2004 took all trials approved by ethics committees in two cities and revealed that almost two-thirds had switched at least one pre-specified primary outcome.²

The case of Tamiflu illustrates the need for public awareness of the research and development procedures used by drug companies. Tamiflu was a drug which was being developed in case of a bird flu epidemic and so because of its special significance, the UK and Australian government requested for the Cochrane Acute Respiratory Infections Group to update its earlier reviews on the drug. However, without the review being accessible to the public on the internet, their oversight of the flaws and bias within the data of the drug's producer would not have been noticed. Now, due to concerns about consumer confidentiality, an ombudsman ruling has forced the European Medicines Agency (EMA) to stop giving information about registered trials to industry applicants. Since then a request for a clinical study report by Cochrane has been rejected.³ Also, as part of the Transatlantic Trade and Investment Partnership (TTIP) the pharmaceutical industry is seeking to restrict public access to data from clinical trials.⁴ If in the future drugs are stockpiled in the event of an emergency, it is possible that any flaws in their development would remain unchallenged, rendering the defence ineffective.

In 2008, researchers looked at the Food and Drug Administration's (FDA) records for every antidepressant trial conducted between 1987 and 2004 and found that among 74 FDA registered studies, 31%—accounting for 3449 study participants—were not published for reasons associated with the study outcome. Of the thirty-eight studies viewed by the FDA as

having a positive outcome only one was not published whereas of the thirty-six studies viewed by the FDA as having negative or questionable results, twenty-two were not published and eleven were—in the view of the researchers—published in a way that conveyed a positive outcome.⁵ Recently, the FDA has demanded registration of all trials and stipulated that the results of all trials submitted to their register must be published within one year of registration.⁶ However, companies are still permitted to apply for exemptions or an extension and various studies have shown that the level of compliancy with the publication ruling is somewhere between 22% and 65%.⁷ If pharmaceutical companies cannot even contrive an excuse for not publishing trials, the fine levied is only \$10,000 per day, in theory, for non-compliance. This does not constitute a sufficient deterrent for larger companies.

In order to maximise revenues, pharmaceutical companies have adopted many sophisticated methods to evade obligations imposed by regulators. The off-license use of drugs is permitted because some drugs are known to be effective in treating conditions other than those for which the license was given, but pharmaceutical companies use this permission to promote their drugs for use in conditions where the drug either has a marginal benefit or no benefit at all. As a direct result of the off-label usage of the endocrine disruptor diethylstilbestrol (DES) for threatened miscarriage between the 1940s and 1970s, between 2 and 8 million births were affected and more than 90% of the children born to parents taking DES suffered with reproductive tract dysfunction.⁸ In order to address the issue of inappropriate off-label use, regulators have offered incentives for companies to obtain market authorisation for secondary uses. However, the means are still available for companies to obfuscate and distort the outcomes of trials, so there is little assurance that drugs will only ever be used for their intended purpose in the future.⁹ When a new disease emerges and there is not any medicine specifically designed to treat it, a case can be presented for an expedited approval process.¹⁰ Inevitably, by limiting the pre-approval period for the drug, the company developing a drug for a new or supposedly new condition can, as well as improving their turnaround time, evade much of the pressure to provide compelling research.¹¹ Drug companies then have the incentive to lobby for new illness classification which is especially easy to do in mental health because of the subjective nature of mental health diagnoses (see Chapter V).

In view of attempts by pharmaceutical companies to evade regulation, regulators have tried to improve oversight of the industry, but many of their attempts have not been productive. The National Institute for Clinical Excellence makes decisions about the effectiveness and value of medicines on behalf of the NHS but has no legal right to access the data it requires to make unbiased summaries of new treatments.¹² Even when it is provided with data, this can be heavily censored in order to preserve commercial confidentiality.¹³ The EMA are required to monitor the risks of a drug once it has been made available; however, just as a doctor may not wish to reveal the fact that his or her decision to prescribe one drug rather than another is arbitrary even though such an admission would assist medical standards in general by qualifying the patient for participation in a random trial, the EMA may be reluctant to concede that a drug they formally approved might be dangerous.

There have however, been some outcomes associated with changes to regulations which are definitely positive. In 2004, for instance, a fraud investigation into one company's concealment of data relating to the dangers of off-label usage of its antidepressant resulted in

the company having to post its clinical trials on a public website.¹⁴ Also, in 2014, MEPs voted by a majority of 547 to 17 to adopt the Clinical Trials Regulation which requires that all drug trials in Europe are registered before they begin on the publicly accessible EU clinical trials register, and that a summary of the results from these trials is published on the register within a year of the trial's end.¹⁵ Still, for drugs to be deemed efficacious by regulators at present, they need only have been proven to be superior to placebos. This is considered permissible because it is necessary for some contingency medications to be available should a patient react adversely to the medication typically used for a particular ailment. However, the unregulated proliferation of rival drugs is forcing doctors to research more and more products in a manner which is necessarily more and more cursory. The market saturation activity of pharmaceutical companies increases the price of medicines in a world where, although health budgets are finite, the demand for medicines, because of marketing strategies, has been found to be plastic; therefore drug companies can act as cartels while resources available for patient care are compromised. In order to choose the right drug and to enable the involvement of patients in decision making, doctors require detailed, discrete information about available drugs, but as more drugs enter the market, doctors struggle to distinguish between prominent drugs and those which merely serve a marginal or token purpose. Pharmaceutical companies anticipate the bewilderment thus engendered and can take advantage of it by providing product information in a convenient but potentially misleading summary form.

Income in the form of fees remitted by the pharmaceutical industry for advertising opportunities provides a major source of income to medical journals, and medical journals regularly produce supplements: free editions which often report on industry-sponsored conferences or other events. A study in 2011 which considered four hundred and twelve articles from eleven journals read by GPs in Germany found that free journals subsidised by advertising almost exclusively endorsed specified drugs, but that in those funded by subscription fees, the specified drugs were generally disfavoured.¹⁶ As well as doctors themselves, pharmaceutical companies solicit the favour of membership organisations and professional bodies; one study found that of one hundred and ninety-two authors on forty-four guideline documents, four out of five reported receiving money from industry when asked.¹⁷ In 2012, the ABPI launched a 'joint working agreement' which gives drug companies with involvement in management of individual cases access to patient lists with a view to recommending their own medication.¹⁸ This initiative has coincided with the creation of Clinical Commissioning Groups (see Chapter II: Public and Private Healthcare), which by providing more work for GPs, could make them more inclined to cede elements of patient administration to drug companies. Already in the USA, pharmacies sell prescribing records to companies so that these companies can see individual doctors' prescribing habits.¹⁹ This is in order to better monitor the effectiveness of drug companies' advertising and to offer greater incentives for doctors to prescribe their produce. In the USA, patients can be advertised to directly and there it was found that only half of adverts' claims were supported by trials they themselves referred to, and that of these trials only half were deemed high quality.²⁰ While pharmaceutical companies in the UK do not directly advertise to patients or prospective patients, they can still facilitate opportunities for expression for those groups who happen to be sympathetic to a drug company's product.

Having less time to research more drugs leaves doctors more prone to the advances of sales representatives from pharmaceutical companies whose information is likely not only to be superficial but also highly biased, more so even than the research which though corrupted, as explored, at least maintains elements of regularity. While doctors are clearly more than the sessional functionaries which recent reforms appear to cast them as (see Chapter II: Public and Private Healthcare), among GPs as among any professional group, or indeed any walk of life, aptitude for responsibility will vary greatly. It is inevitable then, that in the absence of appropriate regulation, many doctors will be complicit in avaricious and unscrupulous practices. Academics are judged by the frequency and the impact of their submissions, so while pharmaceutical companies are allowed to ghost-write research and use the names of doctors to give studies the appearance of authenticity, it is inevitable that some doctors will be found who will take the opportunity to advance their careers. And just as pharmaceutical companies can argue that to be doing otherwise than cheating puts them at a unique disadvantage, the more doctors rise to prominence in academic spheres by advancing the interests of companies selling potentially dangerous drugs, the more pressure is on other members of the profession to realise their ambitions by similarly dishonest means. Although to prevent ghost-writing by pharmaceutical companies, The Association of the British Pharmaceutical Industry (ABPI) has stated that all drug companies must declare how much money they have paid to doctors for their services; in reality this requires only the disclosure of the total amount given and the total number of recipients.²¹ Similarly, while the International Committee of Medical Journal Editors stipulates that to be named as an author in a journal, the individual must have contributed to the conception and design of study, contributed to the drafting or revising of the manuscript and must have finally approved of the contents of the paper; no mention is made of how little work can constitute a 'contribution'.²²

In 2007, a Danish study of industry sponsored trials approved by ethics committees found evidence of ghost authorship in 75% of publications by comparing individuals documented as prominently involved in the trials with those listed as authors, and in a court case which revealed that it was Lilly's aim to make Zyprexa (Olanzapine) 'the number one selling psychotropic in history', it was revealed that the services of a UK doctor were used to add the finishing touches to a ghost-written article about a drug which for several years has been known to result in massive brain loss in Macaque monkeys.^{23 24} The authors of a later study on human subjects concluded that although the loss of grey matter in Olanzapine patients over a twelve-week period was greater than controls, the difference was not statistically significant and could have happened by chance. However, the study was funded by Eli Lilly, the manufacturer of Zyprexa (Olanzapine).^{25 26} It is also worth mentioning that lawyers run special courses for doctors who prescribe the drug to reassure them that they are unlikely to be successfully pursued over side effects.

It is worth noting that malpractice is not the preserve of the private sector. In 1997 a systematic review found that publicly-funded studies with significant results were two and a half times more likely to get published than those without.²⁷ Government regulators are not paid as well as representatives of the companies they work with therefore it may be difficult for regulators to resist the approaches of pharmaceutical companies desirous of their insight. Moreover, there seems to be little condemnation of this kind of movement: in January 2011,

within four days of resigning his post at EMA, the incumbent executive director was hired as a private consultant for a pharmaceutical company with the approval of EMA's chairman.²⁸ Perhaps because regulators are paid for by the fees of drug companies, they share a similar sense of indebtedness to them as the GPs who are regaled by representative of drug companies (more later in this section). Certainly there is considerable informal contact between regulators and drug companies which would increase a sense of obligation: many patient representatives on EMA boards come from organisations funded by drug companies.²⁹

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The Australian government recently conducted a review of how bad pharmaceutical marketing can be regulated, and when the review was rejected in December 2011 it was the pharmaceutical companies themselves who were most critical.³¹ While it may not be in the financial interests of any company to show leadership, clearly people in pharmaceutical companies do feel uncomfortable with the practices which have arisen in the absence of appropriate regulation. As in many industries and national public sectors there is a vicious cycle by which a culture of secrecy is instated to reduce the risk of reprisals, leading to yet more egregious behaviour which in turn results in the prospect of greater repercussions upon discovery, further increasing the need for secrecy as a form of protection.

Many companies have moved their operations abroad in the quest to evade regulation and in 2008 the FDA announced that trials conducted by US companies abroad would need to be compliant with Good Clinical Practice Guidelines (GCPG) rather than the Declaration of Helsinki. Whereas the Declaration of Helsinki restricts the use of placebos in trials, encourages various kinds of ethical disclosures and discusses access to treatment post-trial, the GCPG makes no such stipulations. Also, the relocation of foreign capital to foreign countries inevitably tempts clinicians in foreign countries away from providing for the native population. Of great concern as well is patent-term extension which under TTIP would allow companies to extend the term of their patent with improvements which are 'novel' and 'non-obvious' as opposed to improvements which are 'novel' and involve an 'inventive step' as per EU standards.³² The validation of the 'me-again' principle would allow companies to be eligible to charge vastly greater fees than for generic medicines despite the limited nature of modifications. This would compound the disadvantage to generic medicines of TTIPs data exclusivity proposals which prevent manufacturers of generic medicine from producing affordable drugs for people in impoverished countries.³³

At the General Agreement on Tariffs and Trade in 1994, the World Trade Organisation put in place minimum standards for intellectual property regulation; however some developing countries disputed the interpretation of the policy which led to the Doha Agreement in 2001. According to Paragraph Four of this agreement, intellectual property agreements should not prevent states from engaging with public health crises; still, while Western companies produce many of the drugs poorer countries are accustomed to, they can effectively prevent the public health crisis clause from being invoked by threatening to withdraw their medication from foreign markets.³⁴ Also, the West has attempted to incorporate add-on agreements into the trade-related aspects of intellectual property rights (TRIPS) agreement which limit opposition to patent applications and prohibits national regulatory authorities from approving generic medicines until patents have expired.³⁵ However, India has insisted that standards of non-obviousness and novelty are kept high and

through the production of antiretroviral drugs by Indian generic manufacturers, the cost of AIDS treatment in sub-Saharan Africa is a small fraction of the cost it was a decade ago.^{36 37}

Despite the way in which information is processed and presented by the pharmaceutical industry, many doctors take for granted the influence of the pharmaceutical industry on continuing medical education. A 2011 survey reported that while 88% of doctors thought the support from pharmaceutical and medical device companies—which makes up 60% of the funding for continuing medication (CME)—introduces bias, only 15% supported elimination of commercial support from CME activities.³⁸ Many of those who thought commercial support is biased perhaps do not consider themselves susceptible to industry advertising; however the pharmaceutical industry would not invest so much in advertising to doctors without the expectation of financial return. To illustrate the susceptibility of doctors, one study provided trained actors with set of symptoms, versed them in a background story to report to three hundred visits to doctors in three different American cities, and instructed them to either ask for a specific named drug, for ‘medicine that might help’ or for nothing in particular. In this study those asking for a specific drug or ‘medicine that might help’ were twice as likely to receive a prescription for an antidepressant.³⁹ Because a mental health diagnosis depends on a practitioner making judgements on an individual’s deviance from social and cultural norms, drug companies are well positioned to work simultaneously in availing the public with information about ‘new’ conditions and opportunities for self-diagnosis. Whereas some individuals will naturally recoil from having their personhood reduced to a set of measurements indicating their divergence from norms; many will feel that having a label, albeit a pejorative one, gives them a sense of identity. However, it is doubtful whether clinical attention is the best or even the cheapest way for this need to be addressed. The phenomenon of increased labelling is apparent from the prevalence of social anxiety disorder among the population, which increased from 1-2% in the 1980s to about 13% a decade later.⁴⁰ Likewise in a single generation, Autism has gone from being considered an illness afflicting a small minority of the population to being considered a major social problem, the treatment of which involves a large numbers of clinicians, teachers, academics and drug companies.

Research has shown that in the USA up to 60% of the teaching activities provided by CME companies were funded by the pharmaceutical industry.⁴¹ At conferences which promote the products of drug companies, travel, accommodation and registration are provided by the company as well as the opportunity to receive the kind of lavish treatment many doctors will have had little experience of owing to their busy lives and their past study commitments.⁴² Perhaps at the same time as applying more rigour to their CME, some of the informality of continuous learning could be applied to doctor’s initial training. This could serve the purpose of reducing the frustration which perhaps contributes to the desire for glitz and glamour at the same time as placing a greater emphasis on informal learning and deductive reasoning. This could for instance allow doctors to anticipate problems with giving mothers steroids during pregnancy: a problem which may not be identifiable by a standard trial procedure (see ‘Endocrine Disruptors’ later in this chapter).

So that individual physical processes can be given sufficient attention, it has been deemed necessary for biochemical research to be divided between numerous specialisations. However, it is difficult for specialists in any given field to envisage the impact of highly

specific treatments on other physical systems. Given the fact that the process of screening involves the synthesising of molecules by trial and error, it stands to reason that although available drugs may have been acquitted for usage following tests on beings of increasing complexity, the impact on the whole organism of a drug targeting a specific system cannot truly be known until the patient has undergone monitoring over the course of his or her remaining life: monitoring which is likely to exceed in duration any formal trial testing a surrogate endpoint.

If in the event that a patient consents to information about their future health being documented, and the prescribing GP can identify at least two drugs between which an arbitrary choice would otherwise be made; even given the panoply of influences the individual is subjected to in the future, the random nature of the trial would, with enough samples, allow researchers to isolate the influence of the drug on patients over time.⁴³ Such an approach is less useful for the treatment of mental health issues because the arbitrary nature of illness classifications makes it likely that many of the medications available are not better than nothing. Also, in psychiatry, the mind is acted upon by an equivalent organ which is necessarily restricted in its line of enquiry to the use of an idiosyncratic system of reasoning. Therefore when the mind is treated it is more likely that a surrogate endpoint is a false indicator of health: in treating the symptoms of people experiencing mental discomfort, there is the danger that little-understood protective mechanisms are suppressed. For instance, it is known that an individual is most at risk of suicide when their depression is abating, which suggests that depression serves a protective purpose: one which might be disrupted by a chemical overhaul. Again, the damage inflicted by the drug may be most readily apparent beyond the term of the trial when retrospection might allow for the lost utility of the depressed condition to be discerned.

Genetic Engineering

Lactose intolerance, Asian flush syndrome and varying Vitamin D requirements attest to how crucial even a relatively small genetic variation can be, and scientists may never know enough about the human genome to say with a high degree of confidence that flouting the ecological balance humans have evolved to live in symbiosis with is without serious risk. Whereas in ecology the nature of organisms is understood in terms of an organism's perceptible interactions with the environment, the discipline of molecular biology is concerned with an organism's microscopic components in isolation.

In order to understand how the introduction of genetically engineered produce in our food supply has been facilitated, it is necessary to consider the ideology of the politicians and scientists who have collaborated to promote the endeavour. In 1974, during the early stages of recombinant DNA research, the National Institutes of Health established an advisory panel in recognition of the need for regulation, and the following year a set of guidelines were agreed upon by a group of scientists.⁴⁴ However, even though the decision to limit participation to scientists was intended to preserve scientific principles and protect research from the intrusion of politics, the media's representation of the scientists' exclusionary policy as being worthy of suspicion posed an existential threat to the research and consequently

collaboration between scientists and politicians was perceived to be necessary to protect it.⁴⁵ The outcome of the early struggle between the agenda of scientists and the public aversion to recombinant DNA—albeit aversion largely manufactured by the media—set the tone for scientists and politicians attempting to protect the public from their ignorance, as it was perceived.

By inculcating the belief that the act of splicing genes from one organism to another is merely the simulation of a natural process, the products of recombinant DNA science were claimed to be ‘substantially equivalent’ to their naturally occurring counterparts. As a consequence of this assertion the burden of proof was shifted so that instead of manufacturers being required to prove that a product was safe, regulators were required to prove that a product was harmful. This shift was announced by the NIH director in 1978, and in 1991 the FDA drafted a policy statement which sought to resolve disputes between scientists with safety concerns and pro-industry administrators in favour of the latter.⁴⁶ In 1991, the FDA created a new position, Deputy Commissioner for Policy, which was filled by a man who had previously left the FDA to become a private practice lawyer for King & Spalding, a firm which represented Monsanto, and who actually joined Monsanto as Vice President for Public Policy between 1996 and 2000.⁴⁷ In theory the FDA can only approve a novel additive through scientific procedures if the product meets the criteria for a ‘generally recognised as safe’ (GRAS) exemption. For a product to be eligible for this exemption, it must be experts who generally recognise the product as safe, and this recognition must be corroborated by scientific research. However, in accordance with the re-drafting of policy in 1991 and the substitution of an arbitrary demonstration of substantial equivalence for the original GRAS principles, the regulation for new GE products has been outsourced to manufacturers while the FDA has been reduced to promulgating guidelines to manufacturers.⁴⁸ The approval of the new policy statement by the US government was revealed in a memo from the FDA commissioner to the Secretary of Health and Human Services in which it was stated that the policy ‘responds to White House interest in assuring the safe, speedy development of the U.S biotechnology industry’.⁴⁹

The suppression of a report by two employees of Fox into how one food manufacturer attempted to bribe a government committee to ignore serious safety concerns about their GE product shows how media’s capacity to influence the GE project has diminished since the attempts to raise concerns about the issue of GE food in the 1970s.⁵⁰ Subsequent to the investment of food industry resources into the GE project, the advertising income of many media outlets is heavily supplemented by entities sympathetic to GE, while the GE project’s use of secrecy and obfuscation continues despite the fact that the level of media resistance these expedients were justified in view of no longer exists. Neither can the momentum of the GE venture seemingly be checked by the appearance of side-effects. While proponents might argue that the production of harmful substances is limited by the opportunity for victims to file lawsuits, so diverse are the causes of illnesses such as cancer that it is often extremely difficult to successfully attribute harm to a single cause especially when, as in the case of smoking, the harm is not immediately apparent (see also ‘Other Hazards’ later in this chapter).

The successful introduction of GE food into the market has relied upon fostering an understanding among the public that genetic modification happens in a similar fashion

whether the setting is a laboratory or nature in the traditional sense. However, there is incongruity between the public perception of 'splicing' and the complexity of the process of splicing and the systems into which foreign genes are inserted. The failure to identify specific risks associated with gene manipulation is testament to the complexity of genetic structures and the extent to which they exist beyond the realm of human understanding. Where there is a high probability that attendant risks remain unidentified rather by virtue of their inscrutability than by their absence, the precautionary principle should be applied.

On *eukaryotic* chromosomes there are sequences of DNA known as introns which do not code for proteins and so are removed during transcription, the process which creates RNA strands for the synthesis of proteins. However because introns are not a feature of *prokaryotic* DNA there is no such editing capability in the nuclei of prokaryotes—single-celled organisms. Recombinant DNA scientists often attempt to induce prokaryotic cells to express proteins produced by eukaryotes, but in the absence of an editing capacity to remove introns, the configuration of bacterial cells resists the insertion of genes from plants and animals. In order to surmount this obstacle, scientists have to take the RNA strands from eukaryotic cells after the introns have been excised and apply an enzyme called reverse transcriptase which is derived from a retrovirus to transcribe RNA back into DNA. This DNA can then be inserted into the bacterium. Furthermore, although the fact that more than one sequence of bases can code for the same protein, bacterial (prokaryotic) DNA often favours different sequences for the production of a certain protein to that of plant and animal (eukaryotic) DNA, therefore scientists must reconfigure the genes in order for bacteria to express them. In addition, the promoter which resides at one end of a eukaryotic gene and which regulates the gene's expression will not be attuned to receive signals from the host cell, so the promoter must be replaced along with the terminator sequence which demarcates the end of the gene.

To obtain an alien gene sequence for eventual insertion into an animal, bacteria or plant cell scientists employ restriction endonuclease enzymes. These enzymes recognise specific sequences and cut at these places leaving a segment which is inserted into a circular DNA molecule called a plasmid. The plasmid facilitates the transfer of genes between bacteria by a process called horizontal gene transmission. Scientists can transfer DNA from a plasmid to a bacterium in this way so that the bacteria can then reproduce by the process of vertical gene transmission and subsequent generations can produce the protein coded for by the alien DNA. However, once more there are several impediments to gene manipulation and the surmounting of these requires deliberate efforts which clearly distinguish molecular genetic modification from its classical counterpart. Although the DNA bases of the alien and the host DNA are attracted to each other, a substance called ligase must be used to bind the sugar-phosphate sequences of the respective DNA units flanking the DNA bases. Further, for the bacteria to accept the isolated DNA the bacteria must be subjected to calcium salt and a heat shock. It is not necessary to understand everything of the foregoing explanation, only to appreciate that is a highly artificial process and not equivalent to traditional forms of selective breeding.

Many important differences have been observed between transformed organisms and those grown under natural conditions, some of which could have disastrous consequences. One possibility is that transformed organisms bred to kill or deter pests which prevail beyond the confines of agricultural land could colonise throughout the pest's natural habitat. If a pest

species consequently becomes extinct in the area where the transformed plant is extant, a new 'pest' species may predominate from which there is little or no protection. If a crop which is depended upon is threatened in this way, scientists would be under pressure to contend against impending scarcity and rises in price to produce transformed plants with a degree of urgency which might be inimical to the observance of proper safety procedures. As the resources necessary to produce genetically engineered plants are likely to be concentrated with a small number of companies, the temptation for these companies to minimise their expenses by employing economies of scale might result in a small range of plant strains being cultivated. Where the number of available plant varieties is limited, the impact of any one of them failing is much greater.

When plant samples are bred by identifying obviously auspicious traits, the subterfuge required to induce mating between selected specimens provides an important service to the non-cultivated environment. This is because in the highly competitive ecosystem bordering the agricultural land domesticated plants are destined for, there is little chance of a defining characteristic which the course of evolution has not made prevalent being a beneficial survival trait, and the plant thus endowed becoming well established. Transformed organisms will not necessarily be prone to the same weakness because the desirable trait they exhibit is not the product of a peculiar set of alleles so much as an imposition which will not necessarily impair the survival prospects of the organism. Of course transformed plants may themselves be of a domestic strain but samples which are transformed are unlikely to be so rigorously bred and so debilitated in the wild.

Many of the changes identifiable on the molecular level are likewise very dangerous. For the plasmid of a bacterium to be admitted by a plant, DNA has to be inserted into a species of bacteria known as *Agrobacterium tumefaciens*. This type of bacteria penetrates plant cells and implants its own DNA so that the bacteria can subsist on the substances produced by the tumour cells it creates. Although scientists have been able to excise the tumour-inducing genes, they were required to emulate the similarly invasive actions of a special kind of virus in order to complete the process of implanting DNA into plant cells. This is because although the promoters and terminators of *agrobacteria tumefaciens*' tumour-inducing cells were capable of expressing genes within a plant, they were not producing sufficient levels of protein. The success of the cauliflower mosaic virus depends upon its promoter which is both compatible with plant transcription systems and relentless in its expression of the virus' genes.⁵¹ It is the versatility of this promoter which has seen it used in most of the GE foods currently available, while the permanent expression of the gene to which it is affixed is seen by manufacturers as a convenient additional benefit. However, as the promoter, known as 35S, is operating outside of the regulatory system of the host cells, there are serious risks associated with its application. Some of the risks associated with promoters operating outside of the regulatory system are known. For instance, it is known that the bout of L-tryptophan induced eosinophilia-myalgia syndrome in 1989 was the result of a manufacturer molecularly engineering bacteria to make higher levels of L-tryptophan. But other risks can only be guessed at because the purposes of the functions genetic engineering subverts are largely unknown. Many scientists challenge the notion that DNA code determines the functions of a cell and gradually a conception of DNA as a signifier rather than as a determinant of cell activity has emerged. Central to the emergence of this

view was the discovery that the regulatory mechanism which determines when transcription factors bind with promoters is associated with sequences of code which overlay the linear DNA sequence traditionally recognised by scientists as the sole determinant of cell activity.⁵² This revelation is particularly relevant to genetic engineering because it proves that the act of splicing a gene into a foreign cell must disrupt the super-imposed sequence of DNA.

As well as transforming organisms to increase food supplies in various ways, scientists have experimented with altering bacteria for the purposes of ethanol production. Although this kind of innovation is likely to be popular because of how it could relieve pressure on demand-side solutions to natural resource scarcity, it is a process with great risks as demonstrated by a team of scientists at Oregon State University who subjected an engineered organism derived from *K. planticola* to the rigorous testing that the over-enthusiastic manufacturers of the product did not undertake. The university scientists found that owing to the presence of the altered organism, which resides on living matter as well as the dead matter it converts, all the wheat seedlings in the soil which the engineered variety of *K. planticola* was added to in the experiment died within a week. As the geographical dispersion of this bacteria is global, it is possible that the engineered variety could have established itself on a very large scale.⁵³

When bacteria DNA is added to plants and animal cells the host cells can produce proteins with appendages which can make a protein toxic or allergenic without scientists being able to predict how and when this will occur. Glycosylation is the process where sugar chains are added to a protein and this can even occur when a gene is transferred to a closely related organism. One experiment showed highly toxic effects in mice which were fed a pea that had been engineered to synthesise a protein normally present in a kidney bean.⁵⁴

In Steven Druker's book 'Altered Genes, Twisted Truth', the newly-discovered complexity of cell functions is likened to parallel processing in computer science where distinct operations occur simultaneously and 'race conditions' arise if separate tasks are not undertaken in the correct order.⁵⁵ Here it is posited that without a coherent system of regulation, anarchy can ensue as the simultaneous functions of a cell compete with each other for resources. In this situation the hyper-expressed foreign protein detracts from the production of other proteins as in the case of a rice plant whose sulphur reserves were depleted by the insertion of a sunflower gene, resulting in diminished production of the rice plant's native sulphur-containing proteins.⁵⁶ Because of the nigh impossibility of tracing a causal link between the consumption of GE produce and measurable morbidity, deductive reasoning is of paramount importance in identifying risks. In view of the redundancy of the theory that life processes can be understood in terms of a linear code which abides by human conceptions of cause and effect, scientists must adapt their reasoning as is customary when a paradigm shift occurs. However, the interests associated with the genetic engineering project are multifarious and the fortunes of powerful corporations are bound so closely to the trajectory of technological progress that those within prominent scientific professions are likely to harbour resistance to change. In 2003 Richard Dawkins, whilst serving in a position funded by William Gates of Microsoft, declared that 'the genetic code is truly digital, in exactly the same sense as computer codes. This is not some vague analogy, it is the literal truth', and in the 2014 UN Human Development Report, Bill Gates himself declares that progress in the third-world can be achieved by a 'data revolution'; that 'measuring key

indicators (data) makes it more likely that changes in those indicators will be positive'.^{57 58} These statements reveals the predominance of a microscopic over a macroscopic view of reality; while data collection is an important process and one which should certainly be used more when the safety of genetically engineered processes is tested, without some consideration of the long-term solutions to, and systemic causes of, poverty, problem solving will be restricted to initiatives the success of which is instantly measurable.

Depending on the food distribution scenario which is adopted, it is estimated that enough food can be grown in the world to feed between 11 and 44 billion people. Blowers claims that the saving perspective, which stresses the need for locally-oriented agriculture and the redistribution of food output, would allow every world region to be self-sufficient.⁵⁹ While this model does advocate reduced calorie intake, this may not be necessary should there be substantial reduction in levels of meat consumption worldwide. In monetary terms the agricultural sector in developed countries is miniscule because food can be produced very cheaply. At the start of the twentieth century, for every man working for an hour 4kg of wheat could be produced in the industrialised world, but by the end of the century 600kg of wheat could be produced with just one man-hour of labour: for the average household in the UK in 2013 just 11% of total household expenditure was spent on food and non-alcoholic drinks.^{60 61} Because food can be produced and obtained very cheaply in the developed world, countries whose poor food distribution systems and high population density results in impoverishment should be given urgent assistance. Instead of developed countries using the proceeds of efficiency savings to liberate their land and labour from agricultural practices so much; in the short-term more food should be produced to provide poverty relief to less developed countries: at present, agricultural exports are so lucrative to landowners in developing countries that an increase in land used to address domestic needs in developing countries would, at present, be more likely to result in the displacement of peoples than the conversion of land dedicated to growing produce for export; however, in the long-term, surpluses in developed countries should be used primarily to protect against domestic food scarcity because while the exportation of grain to poorer countries might be a helpful interim measure, it is important that incentives are created for a large part of the land which is currently dedicated to the production of luxury items for export to be given over to the production of staple foods to address domestic demand in developing countries, particularly given the environmental costs of shipping food around the globe. According to the neoliberal economic model, specialisation leads to the efficient allocation of resources, but aside from the fact that specialisation entails externalities of conveying produce long distances; in many places the wealth created by exporting produce to developed countries is retained by large landowners (see Chapter X: Third-World Development).

The need for urgent agricultural reform is further evidenced by the fact that one-third of increases to food production in poor countries have come from the cultivation of marginal land.⁶² Without a provision for the discrete cultivation of niche crops, the unsustainable use of marginal land is likely to be cited as justification for the activities of GE enterprises, even though polycultures and complementary crops can not only address quantitative scarcity but can provide solutions to nutritional deficiency associated with dependence on limited staples. If the West could both reduce food imports and offer compensation to large landowners in return for the implementation of fairer distribution systems, not only would there be more

food available for the world's poor but with the absence of the economies of scale and mass production techniques favoured by larger landowners (including foreign multinational corporations) burdened with large administrative expenses, there would be both opportunities for full employment in poorer countries and the provision of agro-ecological techniques whose efficiency is such as to attenuate the need for genetic engineered produce.

A UNEP report found that in 114 farming projects across 24 African countries which employed organic or near-organic farming methods, the average increase in yield was 100%.⁶³ Another study measured results over three to ten years and found that the average increase in yields among 44 projects across 20 sub-Saharan African countries where agro-ecological techniques were employed, was 214%.⁶⁴ Moreover, not only do agro-ecological methods result in favourable output traits, as these statistics show, they also, by reducing the requirement for pesticides, herbicides and fertilisers, result in favourable input traits. Even where modern methods are already utilised in the industrialised world, the efficiency of agro-ecological methods is comparable with conventional methods: studies in the USA have shown that yields produced by well-managed organic farms are comparable with those of conventional systems.⁶⁵⁶⁶ Instead of using poisons to suppress weeds, polycultures enable space-saving strategies which do not give weeds the space to grow. Of course more labour is required to maintain polycultures but the work more interesting and rewarding, and the additional costs can be recouped in part by a reduction in wages and in part by higher prices; or perhaps with government subsidies. Even if it can be shown that genetic engineering in agriculture can produce greater yields than conventional methods in developing countries, there is so much which could be achieved to improve yields, both politically and technologically, that the benefits of genetic engineering may be negated in view of the associated risks as well as the loss of employment in countries where unemployment is already high.

Endocrine Disruptors

The Endocrine Society describes an endocrine disrupting chemical as 'an exogenous agent that interferes with synthesis, secretion, transport, metabolism, binding action, or elimination of natural blood-borne hormones that are present in the body and responsible for homeostasis, reproduction, and developmental process'.⁶⁷

The endocrine system is a system of glands which secrete chemical messengers known as hormones into the bloodstream to be transported to the organs of the body by the circulation system. In the presence of an endocrine disruptor (EDC) a hormone may not be produced, it may not be delivered to the receptor and target tissue, or it may not be produced or delivered appropriately.⁶⁸ In the pancreas for instance, blood glucose concentration is ordinarily regulated by two types of cell which secrete glucagon and insulin into the blood. Insulin lowers blood glucose concentration by binding to specific receptors on the membranes of liver cells, increasing their permeability to glucose so it can be taken out of the bloodstream. At the same time insulin activates enzymes that convert glucose into glycogen to be stored in muscle and liver cells. Conversely, glucagon binds to receptors on the membranes of liver cells and activates enzymes which break down glycogen into glucose, as

well as forming glucose from glycerol and amino acids. If insulin is not produced in the pancreas, as in diabetes, there will be an excess of blood glucose which can be fatal.

Risk of the following diseases is increased with developmental exposure to endocrine disruptors: breast and prostate cancer, endometriosis, infertility, diabetes and metabolic syndrome, early puberty, obesity, susceptibility to infections, asthma, heart disease and hypertension, stroke, Alzheimer's disease, Parkinson's disease, ADHD and learning disabilities.⁶⁹ As an indication of the scale of the problem, in 2002 a US study documented \$54.9 billion in annual costs for environmentally mediated disease in US children.⁷⁰

The Endocrine Society states that

*'there are increasing data from wildlife studies and laboratory studies with rodents, ungulates and nonhuman primates that support a role of EDCs in the pathogenesis of several female reproductive disorders including polycystic ovarian syndrome, aneuploidy, POR (premature ovarian failure), reproductive tract anomalies, uterine fibroids, endometriosis, and ectopic gestation'.*⁷¹

It has been found that natural changes in the mammary glands which occur in response to alterations in endogenous hormone levels associated with puberty and pregnancy can be induced experimentally by endocrine manipulation, and the consequent alteration to patterns of tissue organisations which have been shown in many studies may disturb important regulatory mechanisms and enhance the potential for neoplastic lesions.^{72 73} In the USA between 1977 and 1997, age-adjusted rates of breast cancer increased by almost 40%, and all of the standard risk factors identified by the Endocrine Society for developing breast cancer—'age at menarche, first pregnancy, menopause, lactation, and parity (number of pregnancies)'—are factors which are related to exposure to ovarian hormones.^{74 75} Therefore it is likely the exposure of women to oestrogen-mimicking chemicals from industrial sources may be partly responsible for the recent increases in the incidence of breast cancer.⁷⁶ Indeed, epidemiological studies have suggested that exposure to diethylstilbestrol (DES) around foetal development, DDT around puberty and a mixture of xenoestrogens around the menopause increases the risk of breast cancer.⁷⁷ Other changes have been observed in respect of reproductive function: between 1982 and 2002 the amount of women of all ages reporting difficulty conceiving and maintaining pregnancy increased by 60% and the number of women under the age of 25 reporting the same difficulties in the same period increased by 200%, while the age of first menarche decreased from about 16-17 in the nineteenth century to about 13-14 in the late twentieth century.^{78 79} While earlier puberty may be in part due to improved nutrition, a study conducted in 2010 with 1,151 girls exposed to three chemical classes of hormones showed association between Daidzein and breast stage, low-molecular-weight phthalate biomarkers with breast and pubic hair development and Enterolactone attenuated BMI associations with breast development.⁸⁰

The male reproductive system is also affected by the presence of EDCs, and the incidence of testicular cancer has increased at about the same rate as breast cancer in recent years.⁸¹ The conclusion that the rate of change of testicular germ cell cancer incidence is too great to be explained by genetic factors alone is supported by the fact that first generation

immigrants experience incidence rates similar to men in their country of birth while their offspring have rates similar to men in the country in which they were born and raised.⁸² In the West, the sperm count and testosterone count has decreased extremely rapidly in recent years—at a rate of about 1% per year between 1931 and 1994 in all Western countries—but most precipitously in Europe where a reduction of two-thirds was recorded between 1945 and 1990.^{83 84} In humans, testicular dysgenesis syndrome (TDS) entails a range of systems ranging in increasing severity from impaired spermatogenesis to undescended testes to hypospadias, with an increasing incidence of testicular cancer according to the severity of the condition.⁸⁵ A study on rodents has showed that a condition similar to TDS can be observed after foetal exposure to phthalates.⁸⁶ Phthalates are man-made chemicals which are used to make plastic more flexible or harder to break and are used in building materials including flooring and wall covering, personal-care products, medical devices, detergents and surfactants but are also present in household dust, which can be ingested, and in fatty foods such as milk, butter and cheese.^{87 88 89} A large study of sub-fertile couples from an infertility clinic found associations between monobutyl phthalate and ‘below World Health Organization (WHO) reference value sperm motility and sperm concentration’, whilst higher exposure to phthalates has been found to correlate with a lower anogenital distance in boys, an indicator of infertility.^{90 91 92 93} There is also a proven link between low-semen quality and high urine concentrations of chemicals associated with non-persistent fertilisers; one study found that the sperm count of agricultural workers was 40% lower than city dwellers.^{94 95 96} For six of the most common pesticides a significant correlation has been found between exposure and increased prostate cancer rates in men with a familial history of the disease.^{97 98} Four of these six compounds share a common chemical structure and have a marked capacity to inhibit p450 enzymes, and three out of four of these compounds strongly inhibit the major p450s that metabolize estradiol, estrone, and testosterone in the liver.^{99 100} The Endocrine Society suggests that exposure to these compounds can interfere with metabolism of steroid hormones and may contribute to prostate cancer by disturbing the individual’s normal hormonal balance.¹⁰¹ As the anti-oestrogens have been effective in managing prostate cancer, it is possible that increases in environmental oestrogen have contributed to recent increases in prostate cancer.^{102 103 104}

EDCs can interfere with the action of the thyroid during brain development and reduce intellectual potential, and it has been shown that PCBs, phytoestrogens, fungicides and pesticides can disrupt the process of masculinisation and defeminisation in the brains of mammals, which is determined by estradiol and testosterone produced by the developing testes.^{105 106} Iodine is essential for thyroid hormone synthesis, and therefore perchlorate—which has become a widespread contaminant in drinking and irrigation waters and in food, and which interferes with the sodium-iodide symporter which facilitates the uptakes of iodide into the thyrocyte—may exacerbate problems of iodine deficiency.^{107 108} Iodine deficiency is already a serious problem, partly due to the substitution of potassium bromate for iodine as a dough conditioner in bread produced in several countries including in the USA.^{109 110 111}

Identifying potential EDCs can be extremely challenging for several reasons. Often endocrine disruptors share no obvious common features other than being compounds of unusually small size.¹¹² Also, EDCs tend to be released into the environment as mixtures which interact additively, antagonistically or synergistically on various different metabolic

pathways making direct links very difficult to trace.^{113 114} Effects are also highly variable depending on the affected individual's stage of development—foetuses and young children are typically most vulnerable to the effects of EDCs, but their influence can be transmitted genetically either by overt mutation or by germline epigenetic modifications.^{115 116} Furthermore the effects of EDCs follow a non-monotonic dose response curve.¹¹⁷ Many EDCs have been found to have significant effects on various systems at low doses. For instance, dioxins—formed during combustion processes—have been found to increase instances of metabolic syndrome, male infertility, and to change the age of pubertal onset in males, while BPA—a chemical used for the production of plastics—has been shown to cause metabolic syndrome and infertility.¹¹⁸ In rats and mice exposed during critical periods of development, small doses of BPA were found to change brain structure, function and behaviour, and studies have shown that women with polycystic ovary syndrome have higher levels of BPA.^{119 120}

The US National Institute of Environmental Health Science identifies twelve chemicals which have been closely linked with human cognitive impairment and 100 which have been shown to impair brain development in animals. However, of the more than 80,000 chemicals in use today, most are untested. The EU has traditionally operated by the precautionary principle, as outlined by Annex XIV of the registration, evaluation, authorisation and restriction of chemicals (REACH) legislation, of which regulation EC 1907/2006 states that 'endocrine disruptors require authorisation' and that 'authorisation (is) not to be granted if risks are hard to manage'.¹²¹ However, in his presentation at an EU conference on endocrine disruptors, Åke Bergmann warns that 'so far only a very small number of all potential EDCs has been identified, and fewer has been subjected to exposure assessments and/or monitored'.¹²² In a different presentation at the same conference, Andreas Kortenkamp observes that 'regulations do not provide criteria for assessment and decision about endocrine disrupting properties', and that 'validated and internationally agreed test methods... severely limits the range of effects that can currently become subject to regulation', while Gwynne Lyons comments that 'requiring a high wall of proof for ED MoA (method of analysis) will lead to paralysis by analysis and legal challenges by industry'.^{123 124} ¹²⁵ Furthermore, 'a large number of environmental scientists have hitherto focused their research on the same few chemicals and financial support is primarily given to research on the same few chemicals', and it is alleged that agencies from the UK and Germany have proposed implementing criteria that would result in only a few chemicals being prohibited and that industry is replacing chemicals which may cause harm with similar chemicals about which little is known.^{126 127 128}

It is known that as part of TTIP negotiations the European Commission is considering proposing changing EU legislation related to pesticides to make it easier for companies to market products containing EDCs.¹²⁹ Furthermore, draft EU criteria to ban 31 pesticides containing endocrine disrupting chemicals have been withdrawn amid fears of repercussions resulting from strong opposition from US lobbyists.¹³⁰ The movement towards chemical deregulation heralded by TTIP would appear to be in direct opposition to the €8 billion 'health, democratic change and wellbeing' element of the EU's Horizon 2020 programme which is intended to support research on the impact of environmental contaminants on health.¹³¹

At the Stockholm Convention in 2001 twelve persistent organic pollutants (POPs) were identified, many of which are pesticides. POPs are subject to the global distillation effect by which substances vaporise at a high temperature and are transported by air currents to the polar region where they are distilled. Because POPs bio-accumulate in the fatty tissues of animals, and they are either not metabolised or are broken down into more toxic compounds, there is a high risk of contamination among people living in the Arctic region which is enhanced further by the high-fish content of the inhabitants' diets.¹³² The persistence of the pollutants and their latency means that even though 179 countries have signed the Stockholm Convention treaty and most have now ratified it, effects are likely to be seen for a long time in the future. In 2007, the arctic monitoring and assessment programme found that in Arctic communities in Russia, Greenland and Canada about two girls were being born for every boy and scientists measuring the man-made chemicals in women's blood found that chemicals which mimicked human hormones were capable of changing the sex of unborn children in the first three weeks of generation.¹³³ In wildlife too, the effects of EDCs have been observed. One study has found a strong correlation between PCB and DDT exposure and instances of uterine leiomyomas in Baltic grey seal populations, and in general, EDCs have been found to decrease resistance to disease, increase thyroid and liver size, increase the prevalence of abnormal testes and ovaries and spontaneous abortions, and to disrupt thyroid hormones, oestrogen and androgen.^{134 135}

Ethinylestradiol (EE2) is a substance which becomes hormonally effective by activating the oestrogen receptor, and it is used in almost all the oral contraceptives taken by an estimated 2.5 million people in the UK.¹³⁶ It is then released into the environment from the waste of consumers. A fish or frog reacts to EE2 as if it was a natural oestrogen, and it can turn male specimens into hermaphrodites which produce eggs in their testes.¹³⁷ Only very small quantities of EE2 are required to interfere with an ecosystem: the introduction of 5 parts per trillion of EE2 to a lake in Canada was sufficient to 'collapse' the fathead minnow population.¹³⁸ The EU has proposed a limit of 0.35 ppt in Europe but the implementation of filtration system would require installing granular activated carbon filtration systems in each wastewater treatment plant, and it is estimated that to upgrade the 1,360 or so wastewater plants in the UK would cost between \$41 and \$47 billion.^{139 140} It may be more viable to encourage the implementation of effective water filtration at the domestic level: a rudimentary drinking water filter can be constructed very easily from variegated stones, sand and loose granular activated carbon.

Other Hazards

With more use of affordable or subsidised naturopathic health practitioners, pre-diagnostic techniques could help constitutional weaknesses to be identified in times of good health. Where illness is considered to be a remote prospect, intervention could be limited to diet and lifestyle advice, while if symptoms of illness are deemed to be fairly imminent, relatively mild and natural prophylactics could be administered. This would have the effect of ameliorating the condition of certain organs and systems, and helping to forestall their deterioration. If weakness could be addressed in advance of symptoms being manifest, the

instances of one or only a few morbid elements threatening the integrity of the whole organism could be diminished, and in this way the deeply uncomfortable and extremely expensive repercussions of treating long illnesses could be reduced.

There is a lot which can be achieved to ameliorate health without any positive intervention and in the last part of this chapter a few examples are given of hazards to avoid. In industrialised nations the average per capita intake of additives is between 3 and 7 kg per year, of which the most widely-used artificial taste enhancers are mono-sodium glutamate (MSG), hydrolysed vegetable protein (HVP) and aspartame.¹⁴¹ Due to their effect on neurons, these substances have been classed as excitotoxins.¹⁴² Monosodium glutamate triggers all three of the receptors in the brain which respond to glutamate, and in cases where there is insufficient presence of zinc, magnesium and glycine, the neuron will 'fire' indefinitely, become exhausted and die.¹⁴³ Areas of the brain without a blood-brain barrier and areas of the brain where there is a high concentration of glutamate receptors are particularly vulnerable; it is the areas of the brain that have the highest concentration of glutamate receptors which are affected by Alzheimer's Disease (AD).^{144 145} In his book *Defense Against Alzheimer's Disease*, Dr Roberts MD writes that many people 'have experienced severe confusion and memory loss after consuming products that contain aspartame, a low-calorie sweetener... This association provides fertile clues for preventing Alzheimer's Disease'.¹⁴⁶ Aspartame has also been linked to brain tumours: one experiment which fed rats aspartame found a 3.75% incidence of brain tumours in affected rats compared to an incidence of zero of the control group.¹⁴⁷ That the dangers of aspartame are known to the food industry to some degree would seem to be confirmed by the fact that many manufacturing plants protect their employees with face masks to prevent them from coming into contact with the dust.¹⁴⁸

In the USA, HVP, which is produced by boiling foods in hydrochloric acid and then neutralising the solution with sodium hydroxide, can be labelled simply as vegetable protein or as natural flavouring: the MSG content of it doesn't have to be disclosed though MSG may comprise 30-60% of the content.¹⁴⁹ The US government only requires aspartame to be labelled on packaging if it contains 100% MSG.¹⁵⁰ In the EU, at least at present, glutamic acid and its salts have to be declared on food packaging; however, EU food regulations look set to be downgraded as the EU's draft chapter on Sanitary and Phytosanitary measures, leaked in July 2014, revealed that food safety laws would be subordinated under TTIP to increase trade in live animals, plants and food.¹⁵¹ At present, according to the precautionary principle, the EU can withdraw a product if there is a risk of danger, and the burden of proof lies with the company seeking to market a potentially dangerous product.¹⁵² However, the US government has expressed the intention to target EU regulations which would block US food exports.¹⁵³

Perhaps the starkest disparity between US and European food regulation is with regard to genetically modified (GM) food. About 70% of processed food sold in US supermarkets contains GM ingredients whereas there is virtually no GM food on sale in European supermarkets and where it is on sale GM ingredients must be referred to on packaging. As things stand trade harmonisation between the USA and EU is likely to result in the introduction of more genetically modified food as EU regulations are attacked by US biotechnology companies and the US government seeks to challenge the EU's mandatory labelling policy.¹⁵⁴ The resistance to the use of GM organisms in Europe has been in part due

to popular resistance, and while popular resistance has not yet resulted in change on this particular issue in the USA, the potential for reform is illustrated by the case of a public petition of 20,000 people in 2012, led by a fifteen year old girl, which succeeded in having bromine—a chemical which has been shown to be harmful to animals and which has resulted in skin lesions and memory loss in some ‘soda drinkers’—removed from Coca Cola and Pepsi Co. products.^{155 156 157}

Another everyday hazard which requires public awareness is the effect of radiation from mobile telephones, particularly on children. The Russian National Committee on Non-Ionising Radiation Protection states that ‘the absorption of the electromagnetic energy in a child’s head is considerably higher than that in the head of an adult’ and cites a number of health hazards they believe children using mobile telephones are subjected to in the short-term, including: disruption of memory, decline of attention, diminished learning and cognitive abilities, increased irritability and sleep problems. It is claimed remote risks possibly include: Alzheimer’s disease, depressive syndrome and other types of degeneration of the nervous structure of the brain.¹⁵⁸

Chapter VII: Non-Renewable Energy of the Future.

Nuclear Waste Storage

Just as how in the past substantial reforms to welfare and sanitation did not keep pace with aspects of progress associated with economic growth, today the agenda of technological advancement neither gives sufficient regard to the need for an equitable distribution of energy nor accommodates the safe disposal of waste. In respect of nuclear power, technology has advanced without there being sufficient consideration for the safe disposal of spent fuel. Although many of the risks associated with radiation have either been eliminated or substantially attenuated, as applications for the technology proliferate and countries whose infrastructure does not support independent and powerful regulation are acquiring technology to produce nuclear energy, new risks are emerging. When the Atomic Energy Act was passed in 1946, the main reason for advancing nuclear technology was the maintenance of strategic advantage over the USSR. As explored in this chapter, the same urgency which compelled furtive actions during the Cold War has continued in a new form as the world clamours to find solutions to the depletion of natural resources and global warming.

Between 1951 and 1992 when the USA was conducting weapons tests at the Nevada test site, the incidence of childhood leukaemia increased by 140% and the resulting deposition of radioactive Iodine-131 across large tracts of the USA resulted in tens of thousands of additional cases of thyroid cancer.^{1 2} Once assimilated by hormones in the thyroid gland iodine-131 can emit beta particles which can cause mutations and cancer but in the 1950s, so little was known about the effects of radiation that the Nevada weapons tests actually became a tourist attraction.³ However, to put this in perspective, in 2010 it was estimated that the level of radioactivity of US commercial spent fuel was 40,000 million curies, while as of 1996 the amount of US defence waste released into the environment was estimated at 3 million curies.^{4 5} This poses a massive challenge, not only in terms of finding a location for the storage of waste, but also because of what is required in preparing the waste for deposition. When the first factory to solidify waste from nuclear weapons was opened in 1996, officials estimated it would take 25 years to solidify the site's 36 million gallons of high-level waste.⁶

In Austria, Sweden and Italy the public voted in referendums to oppose or phase out nuclear power in the 1970s and 1980s and more recently Belgium, Germany, Spain, and Sweden have decided either to phase it out as well or not to build any new plants, although some of these countries still rely on power from their nuclear reactors.⁷ In the USA, California, Connecticut and Wisconsin have placed a moratorium on building further nuclear reactors until a federally approved method of permanent disposal has been approved, and under the Nuclear Waste Policy Act, no state under consideration for a permanent waste repository can construct a long-term monitored retrievable storage (MRS) facility.^{8 9} The fact that waste can neither be stored at MRS facilities nor left indefinitely in fuel pools makes dry cask storage the main option at present. Although Nuclear Regulation Commission (NRC) commissioners have stated that the previous stipulated lifespan of casks reflected an expectation of their obsolescence rather than their invalidation and the Nuclear Waste

Technical Review Board has said that the risks for at-reactor and central storage are essentially equal, it is likely that the lack of facilities for waste storage other than those which are on-site contributed to controversial license extensions, as well as of course the desire to offset the massive ‘overnight costs’ accrued when a reactor is built and initiated.^{10 11} Implicit in President Carter’s announcement in 1977 that the reprocessing of spent nuclear reactor fuel would be indefinitely deferred was recognition that the establishment of a large, central, away-from-reactor facility was necessary in order for storage pools not to reach capacity and to thus be safely maintained, but nearly forty years on there is still no permanent repository for nuclear waste anywhere in the world.¹² Moreover, reactors are not the only places where spent fuel is being deposited and is recognised as a problem—the Idaho National Laboratory, which was designated as the destination for 1,135 shipments of spent fuel in 1995, could be liable to pay \$60,000 for each day the waste remains beyond the agreed date of 2035.¹³

The problem of storing too much fuel at reactor was revealed during the Fukushima Daiichi accident when the overcrowding of fuel pools resulted in more radiation leakage than would have occurred had a procedure for safe removal been instated. And because there was nowhere else for the fuel pool water to be removed to following the disaster, it was dumped directly into the Pacific Ocean at a rate of 1 Sv per hour.¹⁴ The IAEA have said that as a consequence of this, waterborne radiation doses were thousands of times above normal.¹⁵ Reactors are often placed on the coast because of the abundance of water available to cool the reactors, and as artesian water sources continue to deplete, building reactors close to the coast will seem increasingly expedient; however, reactors built near to the coast are increasingly at risk from the rising sea level associated with global warming. As well as compromising the security of spent fuel stored at reactors, the effect of steady sea-level rise combined with stormy weather could result in the disruptions to the generation of nuclear energy; therefore should nuclear energy be over-relied upon, the world might be left with less energy than is necessary to sustain the population.

Although the Yucca Mountain site was thought to be much safer than those sites considered for the deposition of French nuclear waste, because an extremely thorough investigation has taken place at Yucca Mountain, more risks have been exposed which though minor, are numerous enough to be represented as significant. In response to the warning that the Yucca Mountain project ‘should not go forward until the relevant scientific issues have been thoughtfully addressed’, scientists wrote that ‘insisting on scientific understanding of all possible processes only diverts limited resources from a few key processes that control the long-term performance and long-term safety of a geological repository’.¹⁶ American conservatism with regard to nuclear waste disposal has much to do with to the legacy of the Nevada test site as well as memories of Three Mile Island and the Manhattan Project which resulted in waste from weapons development being dumped directly onto the ground. Although the *laissez-faire* attitude of the French government to the inviolability of a repository is not ideal, much larger hazards are likely in the event of a civilisation-altering event than in the event of limited leakage of nuclear waste. If a civilisation-altering event occurs and waste has not been disposed of, there may neither any longer be the means to carry through the intention to dispose of waste permanently nor the means to protect spent fuel containing plutonium from misappropriation. At Yucca Mountain the ‘monitoring and retrievability’ stage which precedes the sealing of waste is set to take 50-

300 years, but the chances of a civilisation-altering event occurring during this time are not insignificant. Although further delays do allow for insights to be permitted, at some point the risks of leaving waste scattered in temporary facilities will exceed the risk of creating a repository with that information which is available at the time. That point may have already been passed. In 1985 the Environmental Protection Agency (EPA) set a standard that radioactivity from a repository should cause no more than 1,000 deaths over the next 10,000 years.¹⁷ Although this may not seem over-prudent, it is actually the same number of deaths that could be expected to occur from radiation from uranium ore had it never been mined at all.¹⁸ Furthermore, in 2008, the EPA extended the compliance period from 10,000 to 1 million years and revised the dose limit from 350 millirems per year to 100 millirems per year, even though the vicinity of Yucca Mountain is deserted at present.¹⁹

In investigating the effects of depositing radioactive waste within Yucca Mountain, scientists have discovered natural features which would help protect canisters from the effects of water. In 1985 two United States Geological Survey (USGS) scientists suggested that 'water flowing through a fracture under unsaturated conditions would be quickly pulled into the adjacent rock matrix by capillary forces' and that this phenomenon would reduce the percolation rate sufficiently to prevent water from seeping into the repository drifts.^{20 21} Indeed, although traces of Chlorine-36 found in the mountain were residues from atmospheric testing of nuclear weapons in the 1950s and 1960s and had travelled 200-300 metres in less than 50 years, Chlorine-36 was not found again in fifty core samples collected near the original sample. However, the effectiveness of natural barriers was revealed as more fallible by results obtained by a process called neutron logging which identified higher-than-expected hydrogen densities in boreholes drilled into the mountain, and in 1997 one scientist found that plutonium and other radionuclides could enter waterways by attaching to particles known as colloids.²² It is still unclear to what extent plutonium is transported into groundwater by colloids but clearly there are doubts over the efficacy of geological repositories over a timescale commensurate with the lifespan of some of plutonium's isotopes. The concurrence of risk factors associated with the long-term storage of nuclear waste makes the engineering of artificial barriers paramount, especially given the susceptibility of man-made containers to corrosion in the timescale of hundreds of thousands of years.

Clearly no site is perfect and so failing a moratorium on permanent waste disposal the relative benefits of available options must be considered. At Yucca Mountain the potential for water to percolate into the repository is limited by the very low rainfall which the area experiences. In addition, between the land surface and the water table there is a thick, unsaturated zone which would allow for the retrieval of waste, although for security reasons the contingency of retrieval should not be relied upon. The thickness of this unsaturated zone also means that a repository can be built 300m beneath the land surface. Furthermore, after the evaporation and transpiration of rainfall, only 5mm per year would actually soak into the mountain, much of which would be held by capillary forces around openings in the unsaturated rock.²³ Therefore, while it may be impossible to secure against the eventual leakage of radioactive materials, the tiny amounts of water that could reach the repository should the engineered barriers be breached over time, means that the seepage of radioactive material from the site would be likely to be limited. Also, although Yucca Mountain is near a

geological fault, the effects of an earthquake would be greatly attenuated at the depths that the repository was planned for.²⁴ The 5.6 magnitude earthquake which struck twelve miles from Yucca Mountain in 1992 would have had little impact on a repository there and despite historical volcanic activity, a panel of ten experts convened by the US Department of Energy (DoE) estimated the probability of a volcanic event intersecting the repository as being in the region of 1 in 60 million each year.^{25 26}

Another contentious issue is whether the repository should be kept at a hot or cold temperature. The USGS has argued in favour of repositories maintaining a low temperature because sustained temperatures above boiling point would ‘change the fractures and mechanical strength of the surrounding rocks, increase chemical reaction rates, make new reactions possible and greatly complicate predictions of repository performance’.²⁷ Also the expansion and contraction of the rocks resulting from the thermal pulse and its attenuation may distort the structure of the rocks, resulting in fracture openings. The DoE has argued that a high-temperature design would cause water in fractures and pores to vaporise and that dryness around the waste would be ensured for the period for which the waste is hot—at least 1,000 years.²⁸ However, high-temperature storage might cause water vapour to collect above the repository and leak onto the tunnels as the waste cools. Another disadvantage of storing waste at higher temperatures is that waste would have to be greatly interspersed resulting in a greater area needing to be dug resulting in greater construction costs.

As there is a relatively low risk of containers failing in the first 1,000 years, the protection afforded by the elimination of vapour for this period is minimal, whereas the risk of unforeseen changes to structural and mineral composition may be substantial. However, if a low-temperature design is favoured it is important that cesium-137 and strontium-90 are stored separately because these isotopes are short-lived and so would radiate a lot of heat in the early phase of a repository. Strontium-90 and cesium-137 require careful handling because of their effects on health: the nuclear-industry research group and the US Lawrence Livermore Laboratories attributed between 17,400 and 51,000 additional fatalities to the release of cesium-137 gas alone following the Chernobyl meltdown, and because strontium has an electron configuration similar to that of calcium, dairy animals consuming strontium-contaminated grass produce milk which carries the risk of leukaemia.²⁹

In 1957 the National Academy of Sciences wrote a study on the ‘Disposal of Radioactive Waste in Salt Cavities’, and following the study an underground salt bed near Lyons, Kansas was investigated for use as a repository.³⁰ However, this was before the US government’s announcement that spent fuel would not be reprocessed and it became clear that a permanent repository would be required rather than one which was just for reprocessed spent fuel that would only be toxic for 600 years or less.³¹ It has been found that even though the presence of thick salt deposits indicates the absence of groundwater for many millions of years, should water seep into the repository, brine would be formed which is highly corrosive to waste containers. Also, the USGS has expressed concern that salt can react unpredictably when subjected to extremely high heat.³²

Several other options for the disposal of radioactive waste have also been explored. There have been several proposals for space disposal including sending waste to the Moon or sending it into orbit midway between Earth and Venus. More recently it has been suggested that small packages of waste could be fired into space by laser systems.³³ Given the time and

expense which would be associated with trials for extra-terrestrial disposal, a great leap of faith would be required. Arguably the most feasible terrestrial alternative to a geological repository would be sub-seabed disposal. Vast abyssal plains on the sea floor are covered by hundreds of feet of clay and the plates they lie on move only a few inches a year, therefore any repository sufficient distant from plate boundaries would not come close to the fault boundary for millions of years.³⁴ Also, abyssal mudflats have 'low permeability to water, a strong capacity to sorb dangerous elements like plutonium, and a natural plasticity to seal any cracks that might develop around a waste container'; furthermore, laboratory experiments have concluded that 'radioactive elements buried in the clays would not migrate more than a few metres from a breached canister after 100,000 years'.³⁵ Sub-seabed disposal is perhaps a safer option than geological disposal should the waste reach its destination but the chance of accidents in transporting waste to a point where it could be injected into the clay were deemed too great in 1986 when the USA terminated its participation in the research program. Furthermore, in 1996 parties to the London Dumping Convention voted to classify sub-seabed deposition as 'ocean dumping' and the practice was prohibited by international law.³⁶ Although there were many unresolved issues such as whether organisms deeper in the clay could transport radioactive substances upward to the seafloor, and whether despite a successful waste-injection test sub-seabed disposal could be implemented successfully on a large scale; one wonders how far these obstacles might have been overcome had research been permitted over the course of the last 20-30 years.

In order to understand the succession of ice ages over the past million years or so and infer the conditions which might be encountered by a repository in the future, scientists have searched for sediment core whose history can be traced sufficiently far back in time. Having discovered that water vapour containing heavy oxygen (oxygen-18) condenses more easily than water vapour containing light oxygen (oxygen-16), scientists realised that with colder temperatures water vapour containing heavy oxygen would fall as rain at lower latitudes and that water vapour containing light oxygen would move towards the poles and fall onto ice sheets. Therefore, upon finding a high concentration of heavy oxygen in ocean water the past coverage of ocean ice was established.³⁷ Scientists also looked for sea sediments and eventually found two cores which could be studied in conjunction to measure the influence of the different Earth tilt cycles over the past 450,000 years.³⁸ These samples showed that changes in climate correlated strongly with the three tilt cycles but also showed that other significant variations in climate existed which these cycles did not predict. Scientists now believe that the natural cycles of carbon dioxide and methane abundance influence climate change at least as much as the Earth's tilt cycles. However it is still not possible to predict the climate for the distant future, or predict how natural changes in carbon dioxide and methane will interact with human-induced climate change. Scientists are not even sure whether we are currently coming to the end of a warm period or whether we are living in an extended interglacial period. Given this uncertainty it would seem impossible for the EPA or anyone at this time to legislate for the release of radiation within certain limits, but it is clear that repository sites at higher latitudes which are prone to glaciation would be more likely to sustain damage as a result of climate cycles: although canisters have been designed to withstand intense pressure arising from the weight of glacial ice, when ice retreats at the end of an ice age seismic activity increases and the rock and clay surrounding the canisters is

prone to fracturing.³⁹ It would therefore be prudent for sites in warmer regions like Yucca Mountain to come to pass not only to accommodate national waste but to actually accommodate the waste of nations with cooler climates. This would have the additional advantage that the number of repositories would be reduced and so any leakage would be geographically isolated. Assuming that the radiation cannot be safely contained anywhere for one million years or longer, it makes sense for one region to be acutely affected by radiation and thus rendered uninhabitable rather than the radiation threat being less acute but abundant and inescapable. Although the prospect of being burdened with another nation's radioactive waste may be objectionable, it may be that given the probability of migration from and to the region known today as the Southwestern USA in the future, today's inhabitants of that region would feel little more kinship with future inhabitants of the region than with inhabitants of anywhere else. Although it is likely that any repository in Russia would be subject to glaciation in the future, in many areas of the country the climate is so inhospitable even in the present interglacial period that should there be any leakage of waste there, the impact on living organisms would be more limited.

The diversity in public opinion concerning the relative risks and benefits of nuclear power is vast and in order to avoid alienating large swathes of their support base, successive administrations in democratic nations may be tempted to strategically implement holding strategies with regards to the construction of a permanent nuclear waste repository. Even where the political will is present to instigate change, projects like the Yucca Mountain repository outlast a single administration so can be overruled by the succeeding administration as was the case when the Obama administration came to power in 2008. Progress in the field of waste management has been very slow in the UK as well. In 1976 a report by the Royal Commission on nuclear power and the environment described Britain's progress as 'conspicuously backward', and despite recommendations to limit progress in nuclear fission until a regime of safe containment could be implemented, the government ignored the advice and in 1981 pledged to halt the search for a geological repository for 50 years, opting for above-ground storage sites instead.⁴⁰ Wherever there are plans to build a repository, a tax could be levied on all electricity derived from nuclear fission which could be given to any region volunteering to host a repository. This is likely to be particularly effective because the most ideal sites would be in regions with low populations where the money would go further.

Despite the issues Sweden may face in the future with the coming of an ice age it has become the first country in the world to commit to building a repository, work on which is due to commence in 2019.⁴¹

Nuclear Fission

According to Einstein's mass-energy equation the mass of an object is the sum of the masses of its components and its binding energy. In the nucleus of an atom there is both electric repulsion between like charges and binding energy between *nucleons*—the collective term for neutrons and protons. The relative dominance of each of these forces determines the structure and stability of the nucleus. The proportion of the nucleus where nucleons border other

nucleons increases with the size of the nucleus, and if this were the only factor determining the stability of a nucleus then there would be a linear relationship between the size of a nucleus and its stability. However as the size of the nucleus increases, the electrical repulsion between like charges increases; therefore nuclei with a charge number of 28 have the greatest binding energy. Because neutrons do not experience electrical repulsion, nuclei with relatively few neutrons have relatively little binding energy. However, the proton to neutron ratio of all stable nuclei is within a narrow range. Outside of this range elements either emit an electron to convert a neutron into a proton (β^- decay) or emit a positron to convert a proton into a neutron (β^+ decay). This type of radioactive decay is called beta decay and the rate at which it occurs varies depending on the element which is denoted by the atomic number—equal to the number of protons or electrons, and on the specific isotope—denoted by the mass number which is equal to the number of neutrons and protons. Larger nuclei can reduce their proton to neutron ratio by emitting an alpha particle which is formed of two protons and two neutrons and is therefore identical to helium-4. All nuclei larger than lead (Pb^{210}) are unstable and are radioactive alpha emitters. Because protons are emitted as well as neutrons, alpha decay (α -decay) changes the atomic number of the nuclei and so induces transformation to a different atom. All radioactive decay results in ionising radiation which means that the radiation can produce knock electrons off atoms and create ions (charged particles). Of the three forms of radiation alpha radiation is the least penetrative but the most ionising. Although alpha particles cannot penetrate the skin, they can be inhaled or ingested and particles of plutonium for instance, of about 1 micron in diameter, can become trapped in the lungs and cause lung cancer.⁴²

Scientists eventually found that a new form of decay was possible: that if uranium-235 was bombarded by neutrons it could split into two roughly equal sized fragments which would release energy and three neutrons. Some of these neutrons would escape the core, some would attach to uranium-238 to create plutonium-239 and some would induce the fission of more uranium-235 nuclei. In a nuclear bomb the number of fissions is about 10^{24} .⁴³ Fission can be increased by introducing moderators which slow the neutrons down to the optimum speed for producing fission, and/or by enriching the uranium to increase the number of interactions between the fissile uranium-235 isotopes. When introducing a moderator, in order to maximise the transfer of energy between the colliding objects and so slow the neutrons sufficiently, the particles need to be approximately the same size; therefore the single proton of the hydrogen nucleus, being the particle closest in mass to the neutron, is ideal. Water has a high content of hydrogen, but can take on and so incapacitate the bombarding neutrons to create deuterium; therefore deuterium or heavy water itself is often used to moderate neutrons. Graphite can be used as a moderator in a reactor but it was implicated in the Windscale and Chernobyl accidents.^{44 45} Furthermore it requires a larger reactor core and results in high decommissioning costs.^{46 47}

Nuclear Reactors

Worldwide, light water reactors form the largest group of reactors, but there are distinct advantages with heavy water reactors. Although the cost of heavy water represents about

20% of the cost of a heavy water reactor, these reactors have a better neutron economy and can use uranium which is less enriched. This may be crucial should uranium become a scarce resource (see 'Reprocessing' later in this chapter).^{48 49} Several Generation IV reactors are currently being developed in order to increase efficiency, reduce waste and improve security, such as supercritical water reactors (SCWRs) which operate like the prevalent pressurised water reactors (PWRs) but heat water to such high temperatures that less water is required and no steam generator is necessary. The thermal efficiency of SCWRs is about 45% compared to about 32% for PWRs.⁵⁰ Some modern designs are based on the thorium-uranium fuel cycle as opposed to the uranium-plutonium fuel cycle and so would help forestall problems of fuel scarcity, there being approximately four times the amount of thorium than uranium reserves on Earth.⁵¹ Very high temperature reactors (VHTRs) use graphite for neutron moderation and could potentially provide high quality process heat for hydrogen production and other industrial applications. Conceivably, nuclear power could be expanded to satisfy domestic and industrial electricity needs whilst providing energy for the production of hydrogen for transportation. Other types of reactor are also being designed which would increase fuel flexibility in fast reactors.

In fast breeder reactors (FBRs), neutrons are assimilated into uranium-238 for the production of plutonium-239. Uranium-238 is much more readily available than uranium-235 so this kind of reactor is likely to become more popular as and when uranium-235 becomes scarce or when stocks of enriched uranium and plutonium from decommissioned weapons are no longer available as fuel. FBRs are particularly appealing to India because under fast neutron bombardment thorium-232 is transmuted into uranium-233. Thorium itself does not contain sufficient quantities of fission material to initiate a chain reaction so thorium reactors convert thorium to fission material by a combination of neutron absorption and radioactive decay. To produce the fissile material uranium-235, thorium-232 must absorb a neutron to become thorium-233 then decay to become protactinium-233 which decays to become uranium-235. In breeder reactors enough fuel is eventually produced to create a starting fuel load for another reactor. Whereas light water reactors consume only part of the plutonium and minor actinides they produce, and build up quantities of non-fissile plutonium isotopes, breeder reactors can fission the actinide waste and convert it to more fission products.⁵² Because transuranic elements including plutonium are particularly long-lived, the conversion of these materials into fuel helps to resolve the nigh impossibility of containing the waste in a geological repository for hundreds of thousands of years. There is still some waste from fast-breeder reactors, but it is in the form of radionuclides which require containment for a just few hundred years.⁵³

Different sources give different indications of the interest rates offered when nuclear reactors are built. Shrader-Frechette gives the typical rate as 15% while cost studies by MIT and Chicago put the figure at between 11.5% and 12.5%.^{54 55 56 57} Meanwhile the OECD and the NEA have the rate of interest as 10%.⁵⁸ Whichever figure is used, it is crucial that the when the cost of nuclear-generated electricity is calculated the construction time is also factored as during this time no revenue is available as a down-payment on the loan which escalates accordingly. However, as with establishing the lifespan of a plant (discussed later in this section), methodologies concerning build times vary considerably. European Pressurised Reactors (EPRs) which are a development of the common PWR reactors have an estimated

build time of 42 months but of the first EPR reactors to be built, the Flamanville reactor in France, which began in 2007, is not due to be completed until 2016, while the Olkiluoto reactor in Finland, which was started in 2005, is not due to be completed until 2018-2020.^{59 60}

⁶¹ Clearly as experience of building these reactors increases, mistakes and delays are less likely to occur but at present it would seem prudent to give consideration to estimates based on the historic average building times of ten or more years.⁶² There are also decommissioning costs to consider. Although prior to the privatisation of the energy industry in the UK decommissioning costs were included in the price of electricity, the surcharge was not saved and consequently private companies taking plants part-way through their lives were unwilling to inherit the liability.⁶³ It is also important that when the cost of nuclear-generated electricity is calculated, the reactor's share in the likely cost of interim and permanent storage is factored as well as associated transport costs, even though it may be impossible to determine these costs with complete accuracy. Of course the storage of existing waste is a sunk cost and shouldn't be factored into cost analyses of new reactors. Also, there is a point where environmental externalities become too hard to define and become entirely incalculable so a notional concept of externalities must accompany more definite calculations of costs.

While the Price-Anderson Act passed in the USA in 1957 indemnified the nuclear industry against liability claims, nuclear reactor companies are required to contribute \$121 million per plant (in 2013 parity) to be apportioned to victims in the event of an accident over and above the \$375 million per plant (in 2011 parity) available on the insurance market. In the event that the Price-Anderson fund is exceeded proposals can be submitted to Congress. In countries which do not have the 100% liability policy in operation in Japan and a few other countries, liability capping provides nuclear energy with competitiveness, but does so at the expense of a financial incentive for the nuclear industry to reduce risks; although as the case of the recourse to Congress in the USA demonstrates, a capping policy may only reduce liability coverage notionally. One report claims that 'including the costs of full nuclear-liability insurance, alone, would triple current nuclear electricity costs'.⁶⁴ While this may be true in some cases, part of the cost of nuclear energy inclusive of insurance comprises the profits of insurance companies and other fees. For this reason, it is sensible for part of the liability coverage for nuclear reactors to be provided by government.

The bullwhip effect occurs when there is discrepancy between inventory and orders on the supply chain. Should there be an increase in demand for nuclear energy several different related industries would be mobilised, but were the increased demand not to be sustained many jobs would be lost and manufactured components wasted. A vertically integrated business model which requires information sharing up and down the supply chain makes it easier to match supply with demand and helps prevent inconsistencies between the placement of orders and the requirement for parts.⁶⁵ The sharing of supply chain information on a global scale assists the prevention of the bullwhip effect in cases where inventory is sourced from abroad at the same time as allowing for transit of hazardous materials to be monitored.

The universal adoption of the licensing procedure in effect in France where reactors of the same type are covered by a single license would make supply chain management more efficient at the same time as reducing the costs involved with licensing new designs. Although there is the advantage with diversity in a fleet of reactors that a single design flaw

would result in minimal disruption, the probability of design flaws being introduced to uniform fleets is mitigated both because there are less aggregate design features on which mistakes can be made and because a single reactor design will benefit from the entirety of the designers' expertise and cumulative experience.⁶⁶

Shrader-Frechette claims that because no US plants have been ordered since 1974, new fission technologies are untested and that for this reason US claims of reliability are spurious and past performance remains the best indicator of future risk.⁶⁷ However, the US nuclear energy industry does work closely with France: although Areva requested an indefinite suspension of the US EPRs design certification in June 2015 following DC Constellation's selling of shares to EDF, Exelon and EDF jointly own and run the Calvert Cliffs nuclear power plant operating on US soil.⁶⁸ The UK has also announced that it will follow France in having the same licensing procedure for different reactors built on the same design, and in October 2015 EDF together with the Chinese General Nuclear Power Group signed an investment agreement for the building of two EPR reactors at Hinkley Point. EPR reactors are similar to PWR reactors but use mixed oxide fuel and are, it is claimed, invulnerable to large civilian aeroplane collisions.

Reprocessing

Until fast-breeder reactors which close the fuel cycle are deployed, it is necessary to decide whether the danger posed by wasting the energy in fission products and burying more radioactive waste is greater than the danger of constantly isolating plutonium by reprocessing it and conceivably making it accessible to irresponsible persons. Just as how creating a single or a small number of geological repositories would minimise the risk of radiation exposure for future generations, the International Framework for Nuclear Energy Cooperation (IFNEC) policy of restricting reprocessing activity to a single and heavily regulated process would massively reduce the risk of proliferation, a risk which is shown to be real by the difficulty of maintaining inventories: the difference between the quantity of nuclear material held according to accounting records and the amount actually measured between 1944 and 1994 in the USA was 2.8 metric tons.⁶⁹ A non-state terrorist group having obtained pure plutonium which is present wherever plutonium and uranium extraction (PUREX) processing is used to reprocess spent fuel, as well as in transactions between dismantled nuclear arsenals and civilian facilities, could conceivably create a bomb with destructive force equal to the Nagasaki explosion with as little as 10kg of plutonium.⁷⁰

Whether plutonium should be kept for reprocessing on economic grounds depends on the price of uranium. According to a 2003 study, the cost of uranium as a reactor fuel would have to increase three-fold for plutonium to be economically viable as a reactor fuel. In her book 'What Will Work', Kristin Shrader-Frechette claims that 'the vast majority of the world's known uranium resources are low grade'.⁷¹ However, increases in the price of uranium may be limited by opportunities to improve the efficiency of extracting uranium from phosphates and the possibly of extracting the 4.5 billion tonnes of uranium in seawater.⁷² One study claims that 'there is no shortage of uranium resources that might constrain future commitments to build new nuclear plants for much of this century at least'.⁷³

However, the enrichment of uranium has environmental implications: about half a metric ton of fluorine is required to produce the hexafluoride gas needed to convert one metric ton of uranium into a highly-enriched form. As a greenhouse gas, hexafluoride gas is up to 10,000 times more potent than carbon dioxide; therefore reactors such as the CANDU type which use heavy water for moderation and can be operated with low-enriched uranium may play an important role in environmental protection.⁷⁴ However, heavy water moderators do produce small quantities of tritium, a radioactive isotope which could conceivably contaminate food and water supplies (see ‘Nuclear Fusion’ later in this chapter). Fast breeder reactors can use thorium-232 and so neither rely on uranium-235 nor produce tritium, while Generation IV FBRs such as the PRISM fast reactor can close the fuel cycle. Still, it remains to be seen whether newer FBRs can be implemented on a large enough scale before renewable options advance far enough to make nuclear energy and thus the financing of reactors, unviable. In the EU, the amount of energy provided by renewable energy increased by 84.4% between 2003 and 2013 and by 2020 it is projected that 20% of gross inland energy consumption in the EU will come from renewable energy. By 2025, Germany hopes to supply 40-45% of renewable energy consumption.⁷⁵

Some European countries had been accepting spent fuel from foreign countries for reprocessing but because reprocessing uranium and plutonium typically only allows for 20% more energy to be produced and because the reprocessed waste had been taken at a price and then returned, albeit in a reduced form, to its country of origin, the transaction was neither economically viable for host nations nor for client nations. However, if the costs of constructing larger and more robust repositories, the externalities of resultant radiation leaks and the sunk costs of existing reprocessing plants are also considered, it might be concluded that reprocessing is deserving of subsidies.⁷⁶ The idea of the Global Nuclear Energy Partnership (GNEP), now the IFNEC, was to address issues of waste disposal as well as nuclear proliferation. In this scheme, fuel-supplier states would provide nuclear fuel and safe reactors to client states who would be required to return all their spent fuel for waste management. Through the UREX+ solvent extraction process which partitions spent fuel constituents, high-level waste could be disposed of more safely and cheaply.⁷⁷ However, the technology to implement UREX+ processing on the required scale is not yet available, and a better prospect may exist in the form of the new generation of fast reactors.⁷⁸ In 2012, GE-Hitachi submitted a feasibility to the UK’s Nuclear Decommissioning Authority and the chief engineer claimed that following the conclusion of the licensing process it would take only five years to make the reactor operational and five years beyond that to ‘disposition’ the UKs 100-tonne plutonium stockpile.⁷⁹

Reactor Risks

Opponents of nuclear energy argue that the global average lifespan of all nuclear reactors closed up to the present day should be used in calculating the financial and environmental cost of nuclear energy, while proponents of nuclear energy argue that because improvements to reliability are ongoing, more liberal estimates are appropriate. While the average life of all reactors closed so far is 22 years, most generation II and III reactors have been designed to

operate for 40 years and extensions typically vary between 5 and 20 years depending on the reactor.⁸⁰ As well as possibly providing evidence of improved safety, the reduction in the number of serious accidents in recent decades may enhance the credibility of industry assurances of reliability. Excluding accidents on Soviet navy nuclear submarines, there were five total or partial core meltdowns in the 1950s, six in the 1960s, two in the 1970s, two in the 1980s, none in the 1990s, none in the 2000s and one in the 2010s.⁸¹ The problem for the nuclear industry is that the last two—the meltdowns at Chernobyl and Fukushima Daiichi—were the worst of all and have been or will be responsible for several thousand deaths: the number of cancers induced by radiation from the Chernobyl meltdown may be as high as 475,000.⁸² However, it is known what lapses caused these accidents to happen and action has been taken to prevent similar accidents from reoccurring. For instance, the EU has made closing RBMK and VVER-440 model 230 reactors a condition for former Eastern bloc countries' membership of the EU because of their unacceptable lack of safety features, while modern commercial reactors have been designed in accordance with the 'defense-in-depth' principle which means that with each fail-safe accumulated, the possibility of accident occupies a lower order of magnitude. The Soviet VVER-440 series had no containment structure, inferior emergency cooling systems, inadequate fire protection systems and plant instrumentation and emergency core cooling systems which were below Western standards.⁸³ Conversely, at a modern commercial reactor 'there may be four or five layers of protection'.⁸⁴ Although international aid has been pledged to improve the safety and performance of other Soviet-designed reactors, the fact it is so difficult and expensive to graft Western technology onto Russian-designed technologies means that the closure of some plants is inevitable as in Germany where the VVER 440/213 plant was closed and the upgrade for a VVER 1000 plant was cancelled.⁸⁵

After the Fukushima incident, the US Nuclear Regulatory Committee (NRC) formed a task force to identify lessons for the US nuclear industry and published a list of reforms to be actioned including improvements to flooding hazard re-evaluations and spent fuel pool instrumentation.^{86 87} However, it has been alleged that there is a culture of negligence in the Japanese nuclear industry: that Japan's nuclear regulation does not have enough independence or influence and leading up to the accident, warnings about inspections conducted in a casual manner and poor maintenance were ignored.⁸⁸ Furthermore, the Japanese authorities do not seem to have taken the risk of radiation to the public seriously enough. The mandatory evacuation zone was a twelve-mile radius of the plant, but about 19 miles northwest of the Fukushima Daiichi plant air radiation readings were measured at 0.8 mSv per hour—a rate of radiation that would accumulate to one year of the ICRP recommended occupational radiation exposure limit within three days.^{89 90} After two months of this exposure most of the fatal cancers of those exposed could be attributed to the fallout.⁹¹ It is possible that, in order to preserve the reputation of nuclear energy, which might have a role in guarding against climate change and in mitigating the desperate measures which might otherwise be taken to procure fossil fuels should no viable alternative be forthcoming, the Japanese government avoided re-settling too many people so as to be able to understate the scale of the fallout and minimise the economic cost of the meltdown. While this approach is understandable in view of the way in which the media coverage subsequent to the Three Mile Island and Chernobyl incidents perhaps exaggerated the threat of nuclear power, it is

important that neither sensationalism nor censorship holds sway over serious decisions about disaster management and the relative advantages of nuclear energy and renewable energy.

The majority of the nuclear-economic studies undertaken have been funded by government or industry as opposed to non-profit NGOs or universities, and neither the US General Services Administration, the National Science Foundation nor the National Society of Professional Engineers insist upon full disclosure of conflicts of interest.^{92 93} It is possible that as with the genetic engineering project (see Chapter VI: Genetic Engineering), much of the secrecy surrounding nuclear energy can be attributed to the perceived need to protect public interests from sensational and reactionary media coverage. However, public susceptibility to sensationalism could be addressed more directly with opportunities for mutual edification between scientists and the general public. Not only could the public be guarded from the most specious forms of superstition and conservatism but the general public, via the contrivance of ‘common sense’ analogies, could provide scientists with an understanding which is complementary to their own penetrative but specialised one, and furnish them with a better appreciation of the context they operate in. While it is important for the public not to be misguided by a perception of risk based on mistakes occurring in remote circumstances, it is equally important for scientists to abide by a precautionary principle—to maintain a degree of awe for the unknown. While the public’s fear of scientific advancement may seem to arise from ignorance, it can be seen as a form of prudence albeit one which is very different to that which scientists employ in the form of the scientific method. There is opportunity for the public’s wariness towards inductive understanding and scientists’ wariness towards deductive understanding to be complementary.

When the project of atomic energy for civilian purposes began in 1953 it was a minor part of what at the time was a strategic military operation, and it could have been predicted that an industry which began as a military project would carry a vestige of the military institution. However, if the advancement of the nuclear industry is carried out in the manner of a single-minded and clandestine military operation operating under the impetus of a non-negotiable forward thrust, it will inevitably be dismissive of the presence of limiting factors—be these competing methods of energy generation, resource depletion, environmental issues or health concerns. Indeed, the US Government Accountability Office has accused the DoE of ‘lax safety, information suppression, failure to report full costs, harassment of whistle-blowers’.⁹⁴ In addition the DoE themselves have warned of serious oversights involving the leakage of radioactive waste-storage containers, widespread environmental contamination at its own facilities and ‘inaccurate and in many cases non-existent’ dose monitoring programs.⁹⁵ Just as how public confidence in oil is manufactured so that higher demand can provide the investment necessary to possibly provide a real foundation for the fabricated confidence, a more favourable impression of uranium availability, of the commercial viability of advanced reactors, and of the soundness of safety procedures may be fostered in order for the aspirations of the nuclear industry to be realised.

A balance has to be found between the objective of redeeming past investments in nuclear energy and the objective of allowing the most viable energy options to develop market coverage. By subsidising nuclear power so that it has a lower-than-market price and can out-compete other forms of energy, other forms of energy which may be advantageous are prevented from having their potential made evident. Furthermore, despite being

dependent on government subsidies, there is a lack of regulatory oversight in the nuclear energy industry which is revealed by the limited progress made on developing a permanent waste repository. The US government's historic concern for environmental stewardship is revealed by how, when oil prices increased following the 1973 embargo and utilities began scaling back their planned increases in energy generation capacity, the Energy Research and Development Administration program redoubled their efforts to find suitable storage sites.⁹⁶ Still, business interests or regional interests can frustrate the plans of central government. For instance, the nuclear waste bill introduced by Mo Udall which was passed by the House of Representatives in 1982 appeared to have successfully addressed the concerns of any states selected to host a repository without passing special amendments to exclude particular sites. However during negotiations with the Senate, a proviso was insisted on that a Governor could veto any proposal to build a repository unless overruled by both the Senate and the House of Representatives.⁹⁷ It is likely that initiatives within government to challenge the hegemony of non-renewable energy provisions will meet similar resistance from business interests committed to nuclear power or hydraulic fracturing.

Nuclear Fusion

Whereas a larger nuclei's tendency towards stability results in radiation being emitted through fission, smaller nuclei find stability in fusing with other nuclei. However, in order to overcome the electromagnetic repulsion of other isotopes a chain reaction has to be initiated which requires large amounts of energy that can only be created with very high temperatures. With enough energy the binding energy of nuclei is released and a plasma is formed of free electrons and positively charged nuclei. The challenge for scientists is how to create a high enough temperature and how to contain the plasma where there is no sufficient gravitational force to keep it together, as there is in a star.

Deuterium consists of one proton and one neutron and comprises 0.015% of natural hydrogen, whereas tritium is not naturally occurring but can be created along with a proton by means of a fusion reaction between two deuterium isotopes. A fusion reaction between two deuterium isotopes is about equally likely to produce helium-3. A substantial amount of energy is produced in this reaction but it is much less than in the production of helium-4 which is created in a fusion reaction between deuterium and the manufactured tritium. The reaction can be made to be self-sustaining if lithium is introduced to the plasma because fusion reactions between the neutrons given off in the reaction and either lithium-6 or lithium-7 also create tritium and helium-4. However the production of tritium causes health concerns because while its lifespan is not long enough to ensure its natural availability, it is long enough to contaminate hydrogen-containing food and drinking water. Also, while helium-3 fusion results in relatively low energy production and requires the extremely high temperatures to be sustained for a longer period of time; of the 17.6 MeV produced by the helium-4 fusion reaction, 14MeV is carried off by the single neutron. In this way a greater radiation risk is posed. Furthermore the neutron fluxes in a fusion reactor core are expected to be a hundred times greater than in a fission reactor and neutron fluxes can result in high maintenance costs due to degrading of the core and the higher radioactivity of container

materials. However, it may be possible for the reactor to be constructed from materials which reduce the radioactivity of the container such as oxide dispersion-strengthened, reduced-activation steel.⁹⁸ Furthermore the precarious nature of the plasma means that if the fuel cycle is closed the fusion cycle is halted, which would prevent a meltdown unlike in the case of a fission reactor which contains large quantities of fuel and needs no additional fuel for the reaction to be continued.⁹⁹

Nuclear fusion is more efficient than nuclear fission in terms of material throughput: whereas in the deuterium-tritium reaction 3.5 MeV of energy is shared between the four nucleons of helium-4, in a typical fission reaction just 0.5 MeV of energy is produced. Furthermore, hydrogen is an abundant resource and it is claimed there is enough lithium on earth to supply all energy needs for thousands of years.¹⁰⁰ Also, the relative difference in mass between the isotopes of hydrogen makes separation much easier than for the isotopes of uranium, resulting in less hexafluoride gas emissions. However, nuclear fusion technology is a long way from being successfully implemented. Although scientists have developed a way to keep plasma within the confines of the vacuum confinement chamber in toroidal fusion reactors by manipulating electromagnetic field configuration, scientists have so far been unsuccessful in creating high enough temperatures to sustain a fusion reaction. The minimum temperature required for this is about 300,000,000°C. However scientists have recently made advancements to a process known as inertial confinement which involves compressing tiny amounts of fusion material by lasers, and although the lasers used in previous experiments would not have been energy efficient, a new system has been devised called 'fast ignition' in which the material is subjected to a relatively low-powered beam and then bombarded by a series of short pulses which interact with the plasma to raise its temperature higher than that required for ignition. Research on inertial confinement is being conducted by the European high-powered laser research facility (HiPER) separately from the main international thermonuclear experimental reactor (ITER) facility which has been established to develop the magnetic confinement system. ITER itself is not even due to begin deuterium-tritium fusion experiments until 2027 and so by the time nuclear fusion technology is commercially viable, renewable energy may be relatively abundant.¹⁰¹

Cancer Risks

If a survey values each statistic for each cancer as equally significant for the purposes of establishing a correlation between a radiation leak and the occurrence of cancer, increases to radiosensitive cancers will be less perceptible. Even though the University of Pittsburgh and Columbia University agree that cancer increases in the four years after the Three Mile Island incident within ten miles of the plant were particularly observable for leukaemia, lung cancer and non-Hodgkin's lymphoma, because their methodology didn't stipulate these outcomes advance of the study, the increase in these cancers couldn't be linked to the Three Mile Island incident in the conclusion.¹⁰² Furthermore, even though most radiosensitive cancers have long latencies, the Columbia University study which concluded that 'the pattern of results does not provide convincing evidence that radiation releases influences these increases' conducted its research only six years after the incident.^{103 104} It is likely that beyond this time

more incidents of cancer would have been found. Meanwhile, The University of Columbia study assumed that radiation would be found predominately in the direction the wind took in the first few hours of the incident rather than in the direction of the prevailing wind, and the study also counted people who had moved to the area since the time of the accident.¹⁰⁵ Although not reckoned to be significant, the researchers did record expected-to-observed ratios of 1.4 for all cancer and 1.7 for lung cancer, which like all respiratory cancers, is adversely affected by alpha radiation.¹⁰⁶ The University of Columbia study found that hilltop communities downwind of Three Mile Island and within four miles of the incident had a sevenfold increase cancer increase. Although there was only a small numbers of cases (2.6 to 19), the increased incidence of cancer is consistent with the fact that the whole of the radiation plume initially situated at a lower altitude than the hilltop would, as it moved towards the hilltop, be concentrated at the raised ground level.¹⁰⁷ Furthermore, many physicians in the Three Mile Island area have reported that hundreds of citizens, especially the 450 hilltop residents who lived 3-8 miles from Three Mile Island ‘had health symptoms consistent with acute high-dose gaseous-radiation exposure, including metallic taste, hair loss, nausea, vomiting, diarrhoea and erythema’.¹⁰⁸ These symptoms are consistent with radiation doses between 1 and 4 Sv.¹⁰⁹

Based on available dosimeter readings an estimated 13 million curies of radiation was released following the Three Mile Island meltdown. However, the only readings which were available were those from monitors that remained ‘on-scale’.¹¹⁰ Had readings from those which went ‘off-scale’ been available, it is likely a much higher level of radiation would have been recorded. The University of Pittsburgh study concluded that there was ‘no consistent evidence that radioactivity released during the nuclear accident has had a significant impact in the overall mortality experience of these residents’.^{111 112 113} Although this study was conducted for the 18 years following the incident and grouped cancers together, it only included potential victims who lived within five miles of the plant, and also excluded children, who are more sensitive to radiation. Although the University of North Carolina study did not analyse the effect of the Three Mile Island incident on children, give due emphasis to thyroid cancer—a highly radiosensitive cancer (discussed in ‘Nuclear Waste Storage’ earlier in this chapter)—or conduct their research long enough after the event for latencies to be manifest, they still observed a 49% higher incidence of cancer among individuals receiving at least the median radiation dose than would ordinarily be expected. Most emphatically the researchers showed that the observed to expected ratio for leukaemia, a highly radiosensitive cancer was 4.0 at the time of the research.^{114 115} Ignoring all else but the 1.4 observed-to-expected ratio of cancer incidence, from a base of 1.2, many scientists have concluded that this increase and the increased baseline rate can be attributed to stress associated with the accident and the presence of a reactor respectively. However although stress may worsen cancer should it already be present, most studies have denied any association between psychosocial stress and cancer-onset.¹¹⁶ Certainly it seems unlikely that, among the general population, the level of concern at the presence of a nuclear power plant could be so intense as to actually induce a significant number of cancers.

Makhijani, Smith and Thorne explain that ‘organ, metabolic and detoxification systems’ of children are not fully developed which makes them especially prone to the effects of radiation.¹¹⁷ Due to their higher rate of cell division, their unformed gastro-intestinal tract

children and other factors, children absorb far more radionuclides than those of adults and are three to four times more susceptible to the effects of radiation than twenty year olds and thirty times more susceptible than sixty year olds.¹¹⁸ It is therefore unsurprising that neonatal mortality provides strong evidence for a causal link between radiation leakage from Three Mile Island and the incidence of cancer. One study showed that within six months of the accident infant mortality within five miles of Three Mile Island increased sevenfold and within ten miles of Three Mile Island infant mortality increased twofold.^{119 120}

While there is clearly a link between radiation leakage and the incidence of cancer, it is important to put premature mortality statistics into perspective. According to one source, the background radiation dose of 3.6 mSv per year from non-nuclear sources is enough to cause causes 6% of fatal cancers, and the US National Academy of Sciences has acknowledged that each year of exposure at the annual limit for radiation exposure of 50mSv increases the lifetime risk of cancer by 1 in 175.¹²¹ Although even very small doses may be said to cause premature mortality, it is likely that only those who would have been highly likely to contract cancer anyway would do so as a result of background radiation—that only a small amount of life would be lost though this kind of exposure. However, after a full career of radiation exposure it is likely that the level of cumulative exposure would be at least approaching the ‘critical mass’ which would defy even a strong constitution not to be prone to malfunction. Public health policy currently operates a ‘linear no-threshold’ model which neither accounts for varying degrees of risk ‘acceleration’ as exposure increases nor the increased risk should the radiation be focused in a specific area of the body.¹²² Furthermore, when ionising radiation is received by the body, cells which are responsible for the production of gametes known as germ cells can be affected in addition to somatic cells. This means that mutations sustained by the effects of radiation can be transmitted to offspring.

Evidence for a causal link between exposure to nuclear radiation and radiosensitive cancers has been found in numerous places. Studies have found fivefold and tenfold increases in child leukaemia and non-Hodgkins-lymphoma near nuclear facilities in Seascale in the UK, Dounreay in Scotland and Elbmarsch in Germany.¹²³ Although the National Cancer Institute (NCI) in the USA concluded that there is no difference in standard mortality rate between ‘radiation-exposed’ residents in counties with reactors and residents of counties without reactors, this study was flawed for several reasons, including that equal emphasis was given to everywhere within the demarcated 1,200 square mile study area, meaning that the effects on those living in very close proximity to reactors would be diluted. Most revealingly, the NCI has admitted that the study reveals some statistically significant mortality risks near some reactors, but these are not represented because the data averages overall mortality for all facilities, among which some reactors will be safer than others and among which the radiation levels will be measured more reliably for some than for others.¹²⁴

Hydraulic Fracturing

Even though less regulated fracking activity would improve the USA’s short-term economic prospects, there is political will in the USA to provide environmental stewardship. For instance, in 2013, despite the Illinois Chamber Foundation claiming that increased fracking

could bring more than 45,000 jobs to the state, the state senate voted overwhelmingly to introduce stringent fracking regulations including a law requiring companies to disclose the chemicals they use in the fracking process, to test water before and after drilling, and to keep wastewater in tanks instead of open pits.^{125 126} ‘Fugitive emissions’ comprise whatever gas issues from the borehole after hydrologic fracturing but is not captured; of the different forms of uncaptured gas methane is the most toxic to the environment, with a global warming potential 25 times higher than carbon dioxide over a 100-year period, according to the EPA. At present estimates of the rate of methane leakage vary from less than 1% to 9%, with many estimates around 3.2%, which is the leakage rate beyond which gas is no cleaner than coal.¹²⁷¹²⁸ In Colorado and Utah leakage rates were found to be 4% and 9% respectively.¹²⁹ However, in 2012, under the Clean Air Act, the EPA was authorised to use reduced emission completions or ‘green completions’ which require natural gas companies to capture gas ‘at the well head immediately after well completion instead of releasing it into the atmosphere or flaring it off’.¹³⁰ Additionally, in 2015, the EPA proposed rules to reduce methane emissions from oil and gas production by 45% by 2035.^{131 132} Further the IAEA has proposed a range of monitoring and communication strategies which it is claimed would add just 7% to well costs.¹³³ Another relatively easy environmental saving for the gas distribution system would be the replacement of cast-iron gas pipes which though they constitute only 3% of US gas pipe miles are responsible for 32% of methane emissions.¹³⁴

There are limited opportunities available for Western governments to influence free market economics and this means that traditionally short-term economic objectives have overruled long-term energy security. Also, the uninterrupted availability of fossil fuel thus far has allowed proponents’ expectations of its indefinite continuation to remain unchallenged. The existence of large reserves of shale gas appears to validate this, but according to one study, despite the fact that the amount of shale gas stored underground could hypothetically address energy needs for the foreseeable future, there is only 23 years’ worth of natural gas that is economically viable to recover.¹³⁵ If as shale becomes more difficult to extract, the prices rises above that of coal, either coal would be favoured or shale gas, being unviable in the free market, will rely on subsidies. Innovation will improve the efficiency of its extraction to some extent, but the same resources used to research methods to extract ever more precariously situated and scarce shale supplies may be diverted from research to improve the efficiency of renewable energy. Also, as the price of extraction increases, there may not be sufficient funds available to ensure the correct safety procedures. As the threat of climate change and unrest caused by fossil fuel depletion make the risk of reactor meltdowns seem less significant nuclear energy may too experience similar trends towards deregulation. While the option of subsidising shale gas would be preferable to allowing the market to favour continued coal use and thus sanction much worse climate change, it would be much better if governments could provide large subsidies to increase the supply of renewable energy whilst encouraging frugality by taxing non-renewable energy.

If shale gas production is left to market forces, the USA may decide to sell shale gas technology abroad or to build plants abroad, but with the exporting of shale technology or shale gas being a major source of revenue the US government might feel vindicated in giving less attention to renewable energy and in neglecting the importance of domestic agricultural and manufacturing industries (see Chapter X: Proposals). However, moderate shale extraction

could prove to be an advantage as the lowered price of energy would allow manufacturing industries to return to the USA. There are positive environmental effects as well: steel manufacturing in the USA has increased rapidly since fracking began which means that the transportation costs of industrial materials has reduced; moreover, by making raw materials for manufacturing from ethane—derived from gas, instead of naphtha—derived from oil, emissions associated with manufacturing processes are reduced.

If the USA attempts to implement shale gas production abroad in countries who have no experience of shale-gas production, there would be challenges involved with establishing safe modes of production wherever the regulatory framework is not sufficiently powerful or independent. Even in a wealthy country with an advanced infrastructure such as the USA, there are many ways in which regulation can be evaded. For instance, in 2005, a national energy bill was passed which exempted hydraulic fracturing from the Safe Drinking Water Act.¹³⁶ The exemption, known as the Halliburton loophole, which gives fracking companies permission not to disclose the chemicals it uses, is purportedly for the protection of trade secrets, but there is concern that the ruling would permit companies to introduce injected fluids which though efficacious as slick-water fluids or proppants are hazardous in the event that they enter aquifers or come into contact with other organisms somehow. Another concern is the disposal of wastewater. When pressure from the pumps is released following the injection of fracturing fluids, ‘flowback’ is released back to the surface, and once the oil is skimmed off and sold the remains must be safely disposed of. However, because between 3% and 80% of the total amount of water used to fracture a well returns as wastewater, and because it is expensive to retain the liquid in large tanks, the wastewater is most commonly piped to public wastewater treatment plants.¹³⁷ The problem with this is that most sewage treatment plants are not able to remove total dissolved salts from the wastewater, and so the contaminants can substantially increase the salinity of rivers, streams and tap water.¹³⁸ There is also the risk that radionuclides including the carcinogen radon could be released from rocks and could either enter the air or drinking water.¹³⁹ In addition the injection of water into fault lines can result in earthquakes: a USGS report revealed that over the last century there has been a sixfold increase in earthquakes measuring over 3.0 in the Richter scale, although more recent studies suggest that the fracking process is ‘only occasionally the direct cause of felt earthquakes’.^{140 141}

One way of eliminating hazards associated with wastewater is using gelled propane or liquified petroleum gas (LPG), which works in the same way as water but instead of being carried back to the surface as flowback it is turned to vapour underground by heat and pressure, and captured with natural gas at the surface where it can be reprocessed.¹⁴² LPG preserves water supplies, limits the chance of polluting water supplies and doesn’t cause earthquakes like water. Some environmental groups are in favour of the use of LPG for fracking and it has been suggested that it could be exempted from New York State’s ban on fracking which was imposed in June 2015.¹⁴³ However, there is limited data about its effectiveness and it is subject to a range of practical limitations including the transportation costs involved with conveying hazardous chemicals, the need to use a compressor on-site to re-condense the gas for reuse and the fact that producing large quantities of liquid propane is extremely expensive. Also, large amounts of chemicals must be added to LPG and LPG does not prevent the migration of methane through casing fractures. This is particularly important

because ‘documented instances of groundwater contamination from the USA are almost all related to the leakage of methane into groundwater’.¹⁴⁴ Some areas whose economic interests depend upon groundwater quality have banned fracking outright. In 2011 France outlawed hydrofracking because of the perceived threat to the wine industry, and following concerns about the contamination of groundwater-holding aquifers a moratorium was placed on fracking activity in Bulgaria resulting in the withdrawal of a hydrofracking license to the US corporation Chevron in January 2012.^{145 146}

A forum supported by Siemens and Royal Dutch Shell found that all shale wells drilled and completed in 2011 used 135 billion gallons of water—equivalent to only 0.3% of the total annual freshwater consumption in the USA.¹⁴⁷ However, water is not available in equal measure across the whole country. Many of the current shale plays are in relatively dry areas where the 1.2 to 5 million gallons used over the course of a shale well’s lifetime are likely to have a greater impact on the local community, especially as the effects of global warming are increasingly felt. Also, as shale gas becomes less accessible, more wells must be drilled to procure the same amount of water. Although the spectre of biofuel production from edible plant matter seems to have passed with the development of non-food biofuel (see Chapter VIII: The Case for Renewable Energy), the threat to local water sources in places like Algeria with its large shale reserves might be grave if fracking to produce energy for the economic activity of local middle-classes or even foreign importers requires the diversion of water resources away from other domestic uses. In many less-developed countries, water supplies are already threatened with scarcity through the effects of increased population density and global warming. Furthermore, in areas which have relatively limited reserves of shale oil and gas, there may only be enough reserves to help facilitate a transition to a more industrialised economy without there being enough to maintain the new economy.

Competition, which can be a catalyst for innovation, may still exist where the reward is performance-related subsidies dependent on safety performance. However, adherence to safety protocol may be best ensured with the level of regulation which a large organisation is capable of providing. A Wall Street Journal study revealed that major energy firms were cited for infractions in 6.5% of inspections whereas mid-sized companies were cited for infractions in 14% of inspections and small companies in 17%.¹⁴⁸ A similar situation must arise sooner or later with energy provision as in the case of large banks when in acknowledgement of their fallibility but in deference to their expert knowledge they were rescued by the government following the financial crash of 2008. Energy companies may be complicit in malpractice including the concealment of hazards, as with the Halliburton loophole, yet because so much specialist information resides with them and because they are operating on a scale which makes co-operation with government feasible, their co-operation should be sought.

As shale gas becomes increasingly difficult to extract its procurement will necessitate ever-more environmentally damaging mining activity. Furthermore, once diminishing returns on mining activity prove impossible to conceal with subsidies, there will be a drastic decline in confidence among investors which could prove catastrophic if by this time the expense of procuring oil has induced dependency on shale gas. However, if in the medium term the scale of energy demand reduces to a level which can be accommodated by a more sustainable infrastructure, dependence on shale gas and nuclear energy may be largely unnecessary, such is the potential of renewable energy should strategic investment continue.

Chapter VIII: Renewable Energy

The Case for Renewable Energy

The desire for eternal life is common to all organisms. Whether consciously or instinctively, all organisms strive to ensure the survival of their likeness. Though the dead remains of organisms living during the carboniferous period have been compressed under millions of years of sediment and bear no resemblance to their living incarnations, their fate is not yet sealed. By the collective significance granted to these organisms by the uniformity of death, the legacy of these innumerable organisms forms a great part of ourselves: without fossil fuels the world's population would not have grown so fast. These organisms are effectively our forbears and we depend upon their gifts for our sustenance.

As energy prices fall demand will increase and suppliers will have a greater market to provide for, making them more numerous and more diverse. For this reason, reductions in energy prices are considered desirable; however, if the sourcing of energy reserves is expedited, so is their depletion; therefore the object of making energy available is defeated, except in the short-term. Between 2002 and 2009 US fossil fuel industries received taxpayer subsidies totalling \$72 billion while renewable energy received \$29 billion, and in order to promote investment in oil exploration, OPEC has at times increased the availability of oil and so encouraged marginal utility.¹ Meanwhile the USA is counting sunk costs spent in pursuing the procurement of oil in the same way that Russia is counting the sunk costs of the USSR's nuclear weapons program: not as an abortive exercise that could nonetheless prove instructive but as an exploration that is assumed to entail irrevocable commitment; in the USSR's case the commitment to reprocess spent fuel.

As part of the Kyoto Protocol to reduce greenhouse gas emissions, the clean development mechanism (CDM) was established to encourage investment in low-carbon emission energy projects in the developing world. Once a low-carbon project is licensed in a non-Annex I (developing) country the country is issued with certified emission reduction units (CERs) which can be sold to an Annex I (developed) country, permitting them to emit one ton of CO₂ per CER. The arrangement is mutually beneficial because to the Annex I country already operating at relatively high level of energy efficiency, the emissions thus sanctioned will represent more economic activity than it would to a developing country whose energy efficiency is likely to be lower and be limited by a lack of capital, a lack which can be addressed by the sale of their CERs. CER credits can be bought and sold within the EU emissions trading scheme (EU-ETS), and although the EU-ETS has been criticised because the price of credits wasn't sufficiently high to discourage carbon use, 900 million credits have now been postponed until 2019-20.² This action will cause the price of credits to rise and the use of carbon to be discouraged.

It has been suggested that a carbon tax could be levied on high-level emitters of carbon dioxide and redistributed through income tax rebates.³ However, the close relationship between purchasing power and carbon emissions makes economic utility roughly proportionate to energy consumption: indeed it is recognised that 'electricity is the most accurate measure of material affluence'.⁴ Therefore, a rebate proportionate to tax paid in a

progressive income tax regime would result in there being no net disincentive to produce carbon. It has been suggested that because of less established renewable energy infrastructures in developing (non-Annex I) countries, these countries should be entitled to credits for nuclear reactor construction, but as well as not being a renewable energy source, nuclear power is unpopular. In a survey of people in 22 of the largest 24 countries by GDP as well as South Africa and Hungary, 62% of citizens opposed the use of nuclear energy.⁵ Although the construction of nuclear reactors is a cost which cannot be included within the CDM, governments could encourage the responsible use of nuclear power by lending to non-Annex I countries for reactor construction at below the market value, at the same time as insisting on a sufficiently powerful and independent regulatory framework and possibly taking the spent fuel of the non-Annex I countries for reprocessing.

Solar radiation management projects seek to reduce the effects of climate change by preventing heat from the sun from reaching the Earth's surface, and there are several methods which have been considered as viable for providing relief from the effects of global warming. Scientists have proposed that injection of aerosols in the lower stratosphere could help cool the planet by increasing the Earth's albedo; however it is not clear whether or not this initiative would result in ozone depletion, acid rain, and drought.^{6 7 8} Another suggestion has been to enhance the reflectivity of clouds by spraying seawater on them; however this programme requires constant maintenance and should it be disrupted the unmodified level of warming would then be exacted on the Earth's surface.⁹ Another suggestion has been to genetically modify commercial crops to have high albedo.¹⁰ It has been estimated that temperate areas may experience up to 1°C of cooling as a result of this but the success of the scheme would depend on the viability of genetically modifying versions of native plants to produce high albedo. Even if this does prove possible it would take a long time before the technology becomes sufficiently abundant. Another possibility is the cultivation of biomass plantations. However, the use of biomass plantations on a commercial scale would almost certainly be morally unacceptable because aside from the environmental impact of burning the ethanol which is produced, the production of ethanol would entail substituting a resource which is less fundamental to survival—fuel for industry—for one which is more fundamental—food for basic sustenance. However, it is possible that non-food plants such as microalgae, water hyacinths and prairie grass—from which biofuels can be produced to replace oil for transport—could make an important contribution to reducing dependency on greenhouse gases.¹¹ These plant sources prevent oil from being burned and also protect against global warming by taking in carbon dioxide. Scientists are also working on technology to sequester carbon gas emissions: it has been suggested that a large part of the eight billion tonnes of carbon dioxide which enters the atmosphere could be stored in depleted oil and gas wells; however this would not only entail the tremendous undertaking of conveying carbon dioxide from the source of its emission to underground storage, but would also entail the challenge of keeping stored gas from leaking. Should leakages occur under the ocean the water would become acidic and the roots of the global food chain could be destroyed.¹²

Studies have shown that solar panels on 1% of US landmass converting solar energy at 20% efficiency could provide the USA with its electricity needs eight times over.¹³ By installing photovoltaic (PV) modules on and around rooftop spaces and parking facilities in

urban areas, solar panels could scarcely make such spaces less aesthetically unappealing, and electric energy in such areas could enable convenient and direct electrical energy for transport purposes without recourse to the grid system. Shrader-Frechette notes that, 'because decentralised solar-thermal energy and solar electric do not presuppose centralised generating facilities, they avoid up to one-third loss of electricity through long-distance transport lines'.^{14 15} However, as long the grid is extensive enough, renewable energy may be well-suited to a centralised grid system. The larger the grid, the greater the possibility than at any given daylight hour there would be sufficient sunlight somewhere on the grid for it to be served by solar energy. And wherever it is overcast there is a high probability of wind energy being available. Even when it is dark or windless everywhere there is the possibility of battery back-up. A 2009 study examining five years' worth of wind data from eleven meteorological stations along a 2,500-kilometre stretch of coastline found that 'the entire set of generators rarely reaches either low or full power, and power changes slowly'.¹⁶ However, with the exception of pumped storage, compressed air storage and a few battery technologies, there is 'only about 200MW of compressed air and battery storage technology operating in the US. The remaining 22GW of storage capacity is hydroelectric pumped storage'.^{17 18} Moreover batteries use heavy metals including mercury, lead, cadmium and nickel, the waste of which poses environmental hazards.¹⁹ Also, one study found that 'of the 50,388 combinations of 19 connected wind farms modelled... an average of 33% and a maximum of 47% of yearly average wind power from interconnected farms can be used as a reliable baseload electric power'.²⁰ However despite these present limitations, the US government is confident that as soon as 2020, even before substantial advancements to battery-storage options have arrived, solar photovoltaic installations could supply 12% of total US electricity and wind could supply 20%.²¹

In the generation of nuclear energy, fluctuations in the base demand for electricity result in efficiency losses because during the course of a thermal nuclear reactor's operation, substances can accumulate which make neutrons unavailable for fission: iodine-235 accounts for up to 6% of all fission products and decays to produce xenon which absorbs neutrons that would otherwise be involved in instigating a nuclear chain reaction.²² When the power of a nuclear reactor decreases, xenon-135 still absorbs neutrons but is not burned-up by absorbing them, resulting in a higher concentration of xenon-135, which in turn inhibits the power of the reactor. Proponents of nuclear power argue that because nuclear reactors operate most effectively at a consistent rate, it would be uneconomical for renewable energy to be the main contributor to baseload energy while nuclear energy is viable and also while gas power can be summoned at times of peak demand. However, the fact that hydropower and combined-cycle natural gas can provide standby capacity to support renewable sources until they are far-reaching and diverse enough to generate baseload requirements means that although gas and nuclear energy together can provide energy requirements comprehensively, nuclear energy may be made unviable by the possibility of using gas and renewable energy in combination.

At present 71% of oil consumption in the USA is used for transportation therefore for a fuel to replace gasoline it would need to address whatever demand for transport energy remains.²³ Currently only about 1.5% of cars and trucks worldwide are powered by natural gas and a best guess estimate by Morgan Stanley is that up to 7% of oil supplies could be

replaced within a decade.²⁴ One reason for this relatively modest projected uptake is the resistance of the automotive industry to change, but another is the fact that whereas gas engines are relatively viable for fleets of buses and trucks, aftermarket conversion kits for cars cost between \$6,500 and \$12,000.²⁵ Private vehicles built with gas engines also cost significantly more than comparative gasoline vehicles: the Honda Civic GX for instance is \$5,200 more expensive than a comparative gasoline vehicle.²⁶ The resistance of the automotive industry together with the long life cycle of existing vehicles and the fact that efforts to make lighter or lower pressure fuel tanks are still ongoing are factors which in combination make gas redundant as a bridging fuel for transportation purposes. John Heywood, professor of mechanical engineering and director of Sloan Automotive Research Laboratory, has said that ‘the only cases where a retrofit might make sense is in large diesel vehicles like buses or ... trucks’.²⁷ Natural gas might be also be useful as a transport fuel in container vessels. One company claims that its liquefied natural gas (LNG)-fueled container vessels are expected to produce 98% less sulfur oxides, 71% fewer nitric oxides, 71% less carbon dioxide, and a ... 99% reduction in particulate emissions’ whilst having a better fuel efficiency than conventional diesel engines.²⁸ Furthermore because LNGs are used in the production of goods which also require oil, their price is linked to crude oil. Therefore should the price of shale be subjected to an upward fluctuation while the price of oil remain steady, the market mechanism, while it prevails, will result in drill rigs being shifted from dry to wet shales (for LNG). In this scenario, the ensuing glut of LNG could be used to provide fuel for LNG-fuelled container vessels or buses and trucks fleets. However, because container vessels typically last for 25-30 years, it may take this amount of time before the technology can be fully implemented, as it would perhaps be uneconomical to prematurely scrap container vessels using bunker fuel.²⁹

As with gas it is not currently viable to retrofit cars with hydrogen fuel cell engines. Although heat from nuclear fission can be used to separate hydrogen and oxygen in water by electrolysis, consumers must live nearby the combined heat and power (CHP) plants to appropriate the energy which thus completes the nuclear fuel cycle; furthermore were hydrogen to be generated in this way on a large scale, a commitment to the nuclear fuel cycle would be fostered. Also, to build both CHP plants and hydrogen cars, vast amounts of initial investment would be required.

Electric cars are preferable to hydrogen or gas powered cars because the technology already exists for them to be implemented on a large scale: in many parts of the world charging stations are prevalent enough for the experience of driving an electric car to be a close approximation of the experience consumers have grown accustomed to. However, although the relatively limited uptake of electric vehicles thus far is largely due to the long lifecycle of traditional cars, the established presence of gasoline-dependent automotive enterprises in the public consciousness and the resistance of the automotive industry to change; the scant regard given to issues of climate change and resource depletion by the general public makes the impairment of utility associated with electric cars, though marginal, a decisive factor. This isn’t to say that electric vehicles which closely resemble traditional cars or full-sized motorcycles are especially desirable from an environmental perspective anyway. An electric bicycle which might weigh 20-25 kg will use about 1.3kWh of electricity for every 100 miles, while at 55mph the mid-range Zero S motorbike, the ZF 13.0, would use

11.6kWh per 100 miles, and the 1,945kg Nissan Leaf would use about 24kWh over the same distance.³⁰ To put this in perspective, given that the electricity consumption of an average UK household in 2010 was 4,648 KWh, if one household were to run two Nissan Leafs for 10,000 miles each year, the electricity cost of running the household's private transport would be greater than all the rest of their domestic economy put together, and then in addition there would be the material throughput of creating almost four tonnes of car to consider.³¹ To maintain similar levels of private transport with electric cars in the future, the scale of the renewable energy infrastructure would have to be greater and greater quantities of fossil fuel and nuclear energy would be required while this extended project is undertaken. In order to revoke the practice of using an object weighing one or two tonnes to convey one which weighs perhaps 50-100 kilograms, the vulnerability experienced by road users who occupy significantly lighter vehicles must be addressed. Just as with public transport where the service cannot be made cheaper and more convenient until more people use it, but substantially more people will not use the service until it becomes cheaper and more convenient, there is a dilemma surrounding the adoption of smaller vehicles which can be best resolved with government intervention together with better public awareness of environmental issues. In Germany for instance, where 430,000 electric two-wheel vehicles were sold in 2013, the greater understanding of environmental issues among the public both informs and is informed by the government's bold moves to promote environmental issues.³² The German government has been able to offer feed-in tariffs above the retail-rate of electricity for a range of renewable energies and although there will be challenges involved with upgrading the electric grid so that energy from the windy north of the country can be transferred to the south, in general the signs are encouraging, as they are in much of Europe.³³ In the EU between 1988 and 2012 coal consumption almost halved despite a resurgence between 2009 and 2012, which was largely due to consumption in Spain and the UK where the use of coal increased by 17 million tonnes in each case—more than double anywhere else in Europe over the same period.^{34 35}

In reforming habits, it is necessary to educate children about the effects of climate change and resource depletion and to provide incentives to use more sustainable transport. One practical solution to reducing dependency on unsustainable modes of transport would be to legislate against insurance companies providing a like-for-like replacement vehicle if the client's own vehicle needs to be repaired. This would allow the driver to become slightly inured to driving in a less comfortable manner at a time when, should they have been in an accident, they are likely to have been rendered temporarily more susceptible to change. This is the principle used in cognitive behavioural therapy (see Chapter IV: Therapeutic Approaches), and is also used in military training where subjection to the rigors of initiation allow for the inculcation of views which once adopted are all but irrevocable (see Chapter XII). It is suggested that some government funding should be made available for recreational driving facilities; it is likely that the loss of enjoyment experienced as a result of the loss of traditional vehicles for routine journeys would be exceeded by the enjoyment derived from occasional participation in racing events or the use of other high-speed facilities.

Managing Scarcity

As discussed in Chapter Three, labour productivity has increased steadily in recent years, but if labour productivity increases are not decoupled from economic growth there can only be relative decoupling between economic output and resource efficiency, often measured as carbon intensity: that is, carbon intensity may decrease with improvements to innovation, but given the fact that improvements to carbon intensity are subject to diminishing returns, it is likely that the rate at which carbon intensity will increase will be slower than the rate of increase in economic output.³⁶ This would result in a net increase in economic activity. Furthermore, the sense of urgency to provide additional innovation is likely to be, beyond a certain threshold, inversely proportionate to the degree of affluence experienced, given the sheltering effects associated with high levels of affluence. The management of research and development budgets is an example of how affluence can attenuate hazard-perception on a national scale. Typically, in economically advanced countries, the largest part of research and development is conducted by corporations for the purpose of generating profit rather than for protecting the environment. Of the total amount spent on research and development in the USA for instance, about 12% is by federal government and non-profit organisations, 17% is by colleges and universities, and 71% is by industry.^{37 38}

The precedents for deliberate economic growth were set before the environmental constraints to growth became apparent, but even now the finitude of natural resources has been recognised, past growth is still generally perceived to be a reliable indicator of future prosperity. While artificially generated confidence may succeed in incentivising investment in oil, the long-term trend is towards lower real supply, and scarcity will be expedited by the high demand created as a consequence of the price reductions which follow investment in new sources of the substance. Not only does each peak in demand result in real reductions to long-term supply *per se* but long-term supply will be further compromised in order to accommodate the consumption habits which arise in times of low prices. Therefore the high prices concurrent with scarcity will become increasingly politically unacceptable and the need to stimulate further investment more urgent. In this manner resource depletion will be hastened by market forces. Hyper-extended economies of scale have maintained the impression of stability thus far, but the reality that savings are increasingly likely to be made in accordance with losses elsewhere can only be hidden from the public consciousness while information is all but monopolised by proponents of orthodox economics. If governments merely act to safeguard consumer confidence for the short-term success of markets, there may not be time for wealth distribution to be adjusted so as to protect the majority of the populace from dire poverty if energy crises and climate change put massive downward pressure on income. Severe and unprecedented levels of human privation remain likely if investment priorities and wealth distribution continue to devolve to the free market to the same degree. More command economics is essential to implement mechanisms which can assist the transition to an era of more responsible and equitable resource management. As increases to the level of research and development conducted by government improve efficiency gains for the public good, command economics can make the necessary declines in aggregate prosperity less precipitous. Furthermore, where the proceeds of popular effort are tangible, co-operation can be made just as thrilling as competition.

Many of the problems faced by communist states have occurred because over-centralisation and a lack of accountability have resulted in inefficiency, but had the technology been available to facilitate an efficient nationwide infrastructure in the USSR it is possible the government would have been less authoritarian and more efficient. Critics of communism may cite the failure of the USSR to create modern conveniences on the same scale or with the same sophistication as in the West, but the market for modern conveniences has not emerged organically. Where the supplier's ability to elicit demand is removed, the reduced variety offered by producers reflects the wishes of the population after impulse buying and consumption-based social positioning have been largely discounted. Also, the criticism that an economy dominated by public sector activity is dull and void of enterprise is only valid where power remains almost exclusively with central government and regional authorities are deprived of discretion.

Proposals

In order to derive more electrical energy from photovoltaic installations it is important to implement new solar farms before mineral resources and fossil fuels resources are so far depleted as to substantially reduce viability. Although favouring Chinese manufacturers would have a negative economic impact in the short-term, this impact would be less significant than the eventual benefits of eliminating or substantially reducing dependence on volatile energy resources. This could happen if solar energy installations were immediately made affordable to more people. It is also worth emphasising that for the moment, the environmental cost of transporting photovoltaic modules by container vessel is negligible compared to the environmental savings of solar energy implementation. In the short-term taxes on profits from renewable energy installations could substitute for levies on specific Chinese imports. Revenue from these taxes could be given directly to national research facilities capable of improving technology and increasing the efficiency of manufacturing domestic installations. In this way as the price of Chinese exports increases due to higher demand, the price of domestic products would decrease. Not only would this measure result in a dramatic reduction to reliance on foreign exports but it would reduce the need for nuclear energy and hydraulic fracturing. If reliance on nuclear energy were to decline, there would be the further advantage of less foreign investment in domestic energy, resulting in less decision-making devolving to foreign investors, including Chinese investors. See also Chapter VII: Nuclear Reactors.

It is also suggested that the government should provide interest-free loans for the establishment of insect farms. The feed conversion rate for insects is several times higher than for typical livestock and the savings in space are compounded by the fact that insects can be grown across three dimensions rather than just two. Although the insects which are commonly farmed require more heat than is naturally occurring in temperate countries, additional heat requirements could be satisfied with the installation of standalone photovoltaic systems. Produce could initially be sold to Chinese supermarkets in the UK and eventually to the wider community.

If northern European nations were to invest in southern European agriculture whilst sourcing more food from there both the struggling economies of southern Europe and those of non-European exporters would improve as long as the transition wasn't so abrupt as to be the cause of economic and political instability in newly-disfavoured exporting nations outside of Europe (see also Chapter X: Third-World Development). There would also be substantial environmental savings. Cold-blooded fish, though less conservative than insects, do however retain more biomass than other livestock so could help people withdraw from meat consumption until entomophagy and/or vegetarianism becomes more prevalent; moreover, to help stimulate the insect-farming industry and improve the efficiency of fish-farming, insects could be used to help feed captive fish. The Mediterranean climate is such that cold-blooded fish stock can be raised on fish farms, and because these fish derive more energy from ambient heat, their demand for food is lower. Soya beans can also be cultivated in a Mediterranean climate, and could form the main source of protein for cold-blooded fish. The relative efficiency of aquaponic fish-farming is further enhanced by the fact that sea stocks are overfished; therefore it would be beneficial for the market share of cold-blooded fish to steadily increase as the overall supply declines.

It is proposed that awareness of the environmental cost of private and aerial transport is promoted and that further incentives are created for efficient travel. Increases to rail infrastructure spending could provide commuters and other travellers with a more viable alternative to private and aerial transport than existing services, but for the advantages of private transport to be simulated, it is important that quiet areas are extended and their rules enforced. Because users of high-speed train services are still likely to calculate journey viability according to journey time, the average length of journey undertaken is likely to increase with the introduction of high-speed rail services. And because each increase in speed beyond a relatively low threshold entails increases in energy output, high-speed rail services are likely to be relatively energy inefficient. Also, with longer commutes there would be an extension of the commuter radius around major cities which would make the desertification of smaller communities even more pronounced. This would in turn encourage an even greater concentration of economic activity in large population centres, which would discourage the development of local infrastructure capable of supporting communities if frequent long-distance travel becomes impossible due to the reduced availability of energy. Also, while the introduction of a high speed rail network would be worth hundreds of pounds per day in freed time to some commuters, much of the general public is likely to feel that general tax increases and/or reductions in public sector spending are not justifiable. Much inconvenience to commuters could be averted by simply increasing the services on existing lines and if necessary, building new lines for new but equivalent services. Direct funding for infrastructure investments could be met in part by increases to general taxation and in part, on a service-by-service basis, by taxes levied by councils whose residents stand to gain from the improvements.

To substantially reduce the risk of severe food shortages and to prevent overseas resources from being unfairly appropriate, meat and fish consumption should eventually be substantially restricted and all or nearly all food consumed should be that which is cultivated close to its destination (see also Chapter III: Taxation). While the adoption of a vegan diet allows for the energy loss associated with the presence of livestock in the food chain to be

entirely circumvented, veganism always requires supplementation and is especially difficult to implement in a cold country where energy requirements are higher and a smaller range of plants can be cultivated.

If allotments were available for all citizens who reside in a rural or suburban environment but who do not have the use of a substantial garden, and if all citizens with a substantial garden were required to cultivate it for agricultural purposes beyond a certain point reliance on imported produce could be reduced; grain stores could be developed to help secure against market fluctuations; employment, educational and recreational opportunities would be created and energy which is expended for the maintenance of physical fitness alone at present could be made to serve a greater purpose. Furthermore, a greater prevalence of land given over to discrete agricultural practice would help restore a feasible level of biodiversity. On idle plots citizens with the time and energy to farm two or more allotments could do so and be allowed to sell produce for profit.

Energy crises should also be addressed by eliminating demand arising from negligent consumption. One policy could be that, where there are no extenuating circumstances, 21°C is set as the maximum temperature a working environment can be raised to. In addition, minimum temperature restrictions could also be imposed where air cooling systems are used in the workplace. It is also important to make people aware that sudden changes to humidity and ambient temperature can increase susceptibility to illness and that adding or removing clothing should be the first line of defence against excessively warm or cold conditions.

Chapter IX: Environmental Regulation

International Environmental Policies

The promotion of ecological agendas has been treated with suspicion by developing countries concerned about the impact of the pursuit of environmental sustainability on their prospects for economic growth and even where the need for environmental protection has been agreed upon there have been important differences in understanding between the global North and South in terms of what constitutes environmental protection. While the North has been mostly interested in global warming and biological diversity projects, the South has considered the most important environmental issues to be desertification, soil loss and air pollution.¹ Although in recent decades the World Bank has put increasing emphasis on facilitating so-called sustainable development in developing countries and has been committed to implementing the UN's Millennium development goals, the World Bank's agenda of creating infrastructure to attract foreign investment is still apparent by its funding of the construction of refineries and power stations and its funding of the development of oil and gas fields. Schemes of this nature foster dependency on fossil fuel and so run contrary to the principles of environmentalism.² Article XX of the General Agreement on Tariffs and Trade (GATT), maintained within the WTO, requires that a country alleged to have been offering resistance to free trade by way of its environmental policies needs to demonstrate it has opted for the 'least GATT-inconsistent' policy available.³ In this way, any environmental policy, however weak, can be made weaker still: because Article XX sets no lower limit on how weak a policy can be, any environmental impediment to free trade could conceivably be overruled by the WTO.

In 1987 the Brundtland Commission sought to appease both developing and developed nations by proposing that there is no fundamental conflict of interest between economic growth and environmental stewardship because, it is claimed, underdevelopment in poorer countries is an important cause of environmental degradation, and because sustainable development can be made to meet 'the needs of current generations without compromising the ability of future generations to meet their own needs'.⁴ In 1991, the Global Environmental Facility (GEF) was established to provide funds to help developing countries protect the environment and implement sustainable development, but developing countries felt that the GEF could not act in their interests while voting was weighted in favour of industrialised nations; therefore the GEF was moved out of the World Bank after the Rio Summit in 1992 and the voting system was reformed so that decisions would have to secure support from a majority of the member states as well as the votes of countries making up 60% of contributions to the fund.⁵ However, without recognising any fundamental conflict of interest between economic growth and environmental sustainability and the degree of reform which would be required to de-couple sustainable development from economic growth, conciliatory efforts are likely to remain aspirational and perhaps falsely reassuring. The fact remains that for environmental policy to be successful a government must, in addressing a specific problem, devote resources to it which could otherwise be spent on competing issues, and developing countries have been concerned that in forming projects to protect the

environment, other forms of aid would be forsaken or emission targets will be imposed too crudely.

While developing countries argue that only a per capita allocation of greenhouse gas allocation is equitable, the West believes that this is not feasible because a per capita target based on emissions close to Western levels would not result in emission reductions at all in the developing world, it having a larger and faster-growing population than the developed world. Among less industrialised countries India and China's condition for compliance, that more developed countries must go further than the relatively modest commitments of the Kyoto Protocol, has created an impasse.⁶ Although the Indian prime minister, Narendra Modi, announced \$30m in solar energy investment for India in November 2015; by stressing the importance of advanced nations committing to ambitious emissions targets, he tacitly disclaimed India's responsibility to combat climate change and signalled that India will continue to rely on coal and fossil fuel.⁷ A spokesperson for Climate Action Network, in Modi's defence, has pointed out, that in resisting substantial emission reductions, 'developing countries are protecting their lifestyles while developing countries are negotiating for survival'.⁸ However, as climate change is likely to lead to increases in flooding and reductions in agricultural production, in India survival very much does depend upon mitigating climate change. While other members of the G77 do not want to reinforce India and China's strategic advantage by making concessions that India and China would not match, neither do they wish to rally against India and China's un-cooperativeness because despite the differences in growth trajectory between India and China and much of the rest of the G77, there is still solidarity among the G77 against the uncompromising attitude the global North is perceived to maintain. China and India's diplomatic position may thus serve as a lowest common denominator in negotiations for environmental protection.

In accordance with Article 25, the Kyoto Protocol could only have been implemented upon ratification by at least fifty-five countries, including those accounting for 55% of 1990 emissions.⁹ Therefore in the absence of participation from the USA a much greater proportion of industrialised nations were required to attain the critical mass of support. For this reason the remaining participants were in a better position to make demands to dilute the treaty.¹⁰ In the event, even in the treaty's weakened form only the UK, Germany and Russia achieved the target of keeping 2000 emissions levels at those of 1990.¹¹

There are essentially two opposing principles in the rule of international law: one is that states have sovereign rights over natural resources and the other is that states must not damage the environment.^{12 13} The degree of conflict between these principles varies considerably in different nations. For instance in Saudi Arabia, the production of electric cars—which is considered by some to represent a significant advance in environmental awareness—would incur severe adjustment costs because of the country's heavy dependence on oil; whereas net importers of oil or those countries with well-established high-technology industries would stand to gain. The issue of how carbon emissions targets can be discretely issued is also contentious. Typically, developing countries view global emission targets as inequitable because targets do not account for the lesser degree of inconvenience experienced by developed countries whose past use of fossil fuels has enabled them to alleviate absolute poverty as well as create the new sustainable technologies which are espoused. Meanwhile, industrialised nations are naturally reluctant to dismantle established infrastructures, and tend

to see the transition to a sustainable economy as being fraught with inconvenience. For instance, the USA in the 1980s was reluctant to address acid rain pollution because of the potential costs to auto-manufacturing and coal-producing states.¹⁴

It often seems as if climate change discussions are becoming increasingly detached from the task of implementing policy on the national level; that talks just serve the purpose of light relief in international diplomacy. The United Nations Environmental Programme (UNEP) which was introduced following the Stockholm Agreement is a junior member of the UN system and so has no executive powers. International non-governmental organisations (INGOs) have been established to address the lack of attention given to environmental issues but being largely fragmented, would struggle to present a united front to policymakers even if there was a body within the UN with the executive power to act on their recommendations.

In 2007 the Fourth Kyoto Protocol stated that if temperature changes are to be limited to between 2.0°C and 2.4°C above preindustrial levels, greenhouse gases would have to peak no later than 2015.¹⁵ This has not happened and China's CO₂ emissions, which in 2014 comprised 23.4% of the world's total, are not set to peak until at least 2027.^{16 17} Historically, one problem of achieving binding treaties, at least among the traditional developed countries, has been a failure to abide by the precautionary principle. Principle 15 of the Rio Declaration addresses this, stating that 'where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation'.¹⁸ Although as part of the dispute resolution procedure of the North American Free Trade Agreement (NAFTA), a board of scientific or technical experts advises the settlement panel where environmental issues are in question in a trade dispute, in the USA today political actors tend to take advantage of the USA's lack of a clear hierarchy of scientists to exploit uncertainty.¹⁹ Lawrence Susskind has suggested that 'when we prefer to take a different political course we attack the available data as insufficient regardless of the strength of the worldwide scientific consensus'.^{20 21} Therefore for politicians, more concrete economic or political interests are likely to dominate, especially given the vast difference between the demands of a short election cycle elected officials are bound to work within, and the needs of the global environment. Also, the wide spectrum of political views within Congress and the two-thirds majority ratification threshold makes it extremely difficult for new laws to be passed in the USA, and difficult for the pioneering work undertaken at the local level—such as that of the six states forming the New England Governors Climate Change Action Plan—to find penetration on the national level.^{22 23} The conservatism of the US congressional system helps explain why the USA, having a significant influence on inter-governmental organisations (IGOs), typically finds it easier to use its existing domestic policy to influence international policy than to allow international policy to influence its own domestic agenda. In the Kyoto negotiations the United States actually agreed to reduce its greenhouse gas emissions by 7% on 1990 levels by 2008 but because the Senate voted unanimously not to ratify any agreement that didn't place an obligation on developing countries, the agreement was not ratified.^{24 25}

In the past the USA has been a pioneer for environmental regulation. For example, in amendments to the 1977 Clean Air Act the USA committed to phasing out the use of chloro-fluorocarbons, and despite continued opposition from the then European Community the USA succeeded in insisting that all known ozone-depleting substances be included under the

1987 Montreal Protocol, the result of which is that the ozone layer is forecast to return to its 1980 condition by 2050 above mid-latitudes and the Arctic, and to its 1980 condition by 2070 above Antarctica. It is claimed that in this way 1.5 million deaths from skin cancer will have been prevented.^{26 27 28} As part of NAFTA, the Clinton administration established an infrastructure investment bank and a Commission for Environmental Cooperation to address environmental issues associated with closer union between the USA and Mexico, also the treaty between the NAFTA countries—USA, Mexico and Canada—contained a proviso stating that no NAFTA party could seek to attract investments by relaxing standards of environmental protection or enforcement.²⁹ The strength of the USA's integrity on environmental issues at the time is revealed by the fact that NAFTA countries were forbidden to take disputes to the WTO because it was feared that the WTO would be more lax on environmental issues.³⁰ The WTO does in fact have a history of resolving disputes against the prevailing environmental interest, such as in the case of Brazil and Argentina who won a case based on a claim that the United States had unfairly discriminated against foreign refiners according to the principles of the 1990 Clean Air Act.³¹ Also, today on the level of individual states there is considerable support for environmental initiatives: many US states have mandated increasing minimum amounts of renewable energy in electricity grids.³²

Attitudes in the West towards environmental protection have improved in recent years and the USA has increasingly recognised the importance of leading by example. In November 2009 the White House announced that 'in the context of an overall deal in Copenhagen that includes robust mitigation contributions from China and the other emerging countries' the President would be prepared to commit to an emissions reduction target for 2020 'in the range of 17% on 2005 levels'.³³ Furthermore, in 2014 new regulations were announced that would reduce emissions from US power plants by 25% below 2005 levels by 2020, representing an overall reduction of 10% with all else being equal.³⁴ Although at Copenhagen no legally treaty was signed, to date 141 countries representing 87% of greenhouse gas emissions have set targets for 2020 on the basis of 1990 levels, 2000 levels, 2005 levels or business as usual levels; with India and China implementing carbon intensity targets relative to 2005 levels.^{35 36} Furthermore, EU states have a tradition of committing large shares of their taxation revenue to realising these targets: in 2005, EU member states committed between 5.2% and 11.6% of their tax revenue and social contribution.³⁷ As well there is recognition of the need for variations in regulatory vigour among member states in accordance with varying capacities: while a fixed renewable energy increase of 5.5% is demanded of all states, there is a variable element based on the state's per capita GDP.³⁸ In spite of opposition from the UK, in 2014 the EU pledged to reduce greenhouse gases by 40% by 2030 and to produce 27% of its energy from renewable sources by 2030.³⁹ The former pledge was renewed in March 2015.⁴⁰ Also, while Eastern European states are not required to implement renewable energy as quickly as other states, in other areas they have been instrumental in improving efficiency. For example the attenuated recycling targets which were implemented following pressure from a UK-led coalition were amended upwards in 2004 and 2005 following the enlargement of the EU to incorporate the new Eastern member states.⁴¹ The EU has shown that international alliances needn't necessarily be characterised by lowest common denominator positioning whereby regulatory harmonisation results in a common downgrading of standards. In fact in some cases the opposite has happened:

Germany's domestic pioneering of air pollution controls has resulted in pressure being successfully applied on the EU to adopt air pollution control on combustion plants, while Sweden, having implemented comprehensive carbon taxation on a domestic level, is advocating for a CO₂ tax which addresses the remaining 60% of emissions not covered by the EU cap-and-trade system.^{42 43}

The principle of co-operation exemplified by the EU is integral to the managerial approach to compliance within the Kyoto Protocol, according to which if a country fails to comply with an environmental treaty it is considered a reflection of incapacity rather than a reflection of intransigence, and offers of remediation are made by the international community to the in-compliant country.⁴⁴ While setting targets which are neither met nor punished for not being met undermines the target which is set, dispensing with targets altogether is not ideal either because this makes recipients unaccountable for the funds they are provided with. A too great emphasis on preserving diplomacy results in difficult decisions being avoided, illustrated by the fact that to date the International Court of Justice has not dealt with a purely environmental conflict.⁴⁵ Faure and Lefevre state that 'transparency in the form of 'naming and shaming' is increasingly being used as a sanction for non-compliance, building on the desire of states and companies to satisfy an environmentally aware electorate, consumers, and shareholders'.⁴⁶ However, there are perhaps limitations to how effective 'naming and shaming' would be among democratic states where the electorate are more concerned about national economic interests—for which there may a cross-party consensus—than about the opinions of the international community. New non-compliance procedures enable states to report their inability to comply with the Secretariat and the Implementation Committee and provide a political framework for 'amicable' responses which cannot be considered 'wrongful'.⁴⁷ While it may be hard to imagine negotiations on other issues of global significance such as international terrorism being couched in such terms, a more conciliatory approach does have advantages. While China's lack of success in managing emissions is partly a result of their inability to accurately measure greenhouse emissions as well as to model and predict future economic growth, it makes sense to give direct aid rather than wait for China to divert resources from other areas. A placatory approach establishes a good level of trust and allows for the introduction of new insights China and the world are likely to benefit from including indexing carbon intensity targets to economic growth.

In 1997 one report estimated that the cost of compliance with the Kyoto Protocol for the USA would be 2.4 million jobs and \$300 billion of GDP at 1992 parity.⁴⁸ Without any way of putting a definite cost on the effects to climate change, it is hard to conduct a cost-benefit analysis but it is likely that the financial difference between a 3°C rise in temperature—the most likely increase by the end of the twenty-first century—and the 2.0°C - 2.4°C rise which the Kyoto Protocol hopes to achieve would be greater than \$300 billion at 1992 parity, even should the USA continue to maintain a relatively low level of reliance on land-based resources.^{49 50} Sceptics argue that with economic growth there is better pollution control and resource conservation programs are made possible which, together with implementation of the polluter-pays principle and the fact that increases to income alleviate the pressure on many to make irresponsible decisions associated with a 'hand to mouth' existence, climate change can be addressed more or less within the free market. This

argument is valid to a point but unless resource conservation programs take up all the proceeds of economic growth, the increase in pollution concomitant with an increase in growth must be addressed by commensurate efficiency gains in combatting pollution, even to just sustain pollution at current levels. Also, short-termism is not something which is exclusive to the poor: impulse buying is an instance of short-termism and this practice is rife in wealthy consumer societies. An optimum level of wealth is one which is high enough so that desperation and inefficient infrastructures do not force recklessness upon the person, but low enough so that the volume of consumption is not reflective of unreasonable marginal utility.

At the Paris climate conference in December 2015, 195 countries accepted a plan to limit climate change to well below 2°C above pre-industrial levels. Warming beyond this level, as William Nordhaus observed in 1975, would take ‘the climate outside of the range of observations which have been made over the last several hundred thousand years’.⁵¹ A number of measures were agreed to at the Paris conference including the implementation of ‘early warning systems, emergency preparedness and risk insurance’.⁵² Also the intention for zero net emissions to be achieved in the second half of the century was expressed, to be achieved with sinks (see Chapter VIII: The Case for Renewable Energy).^{53 54} It has been acknowledged that the national climate action plans submitted prior to and during the conference are not sufficient to realise the ambition of limiting global warming to below 2°C; however, countries participating in the scheme will reconvene every five years to assess collective efforts and form new targets: the “‘facilitative, non-intrusive, non-punitive” system of review’ would continue.^{55 56} The deal agreed to in Paris is to become operational as soon as 55 parties representing at least 55% of global emissions have ratified the agreement.

The Transatlantic Trade and Investment Partnership

Actors in the global economy have demanded the reduction of trade barriers both to prevent a repeat of the nationalism which resulted in the atrocities of World War II and to increase the efficiency of trade. However, globalisation has evolved to the point where it is not only tariff barriers but ‘non-tariff’ barriers which are being targeted. With the new frontier of universal deregulation, policies designed to protect international, non-corporate interests such as environmental welfare are likely to be subjugated along with discrete and culturally-sensitive national policies designed to protect domestic interests. With recourse to arbitration courts according to the investor-state dispute settlement (ISDS) mechanism proposed as part of the Transatlantic Trade and Investment Partnership (TTIP), multi-national corporations whose profits have been compromised by national laws would be able to sue sovereign governments. This could conceivably be employed not only against foreign governments but also against the corporation’s own government via subsidiaries operating abroad.

As part of the negotiations on the Transatlantic Trade and Investment Partnership (TTIP), the EU has called for a legally binding commitment that would guarantee licences for all crude oil and gas exports from the USA to Europe.⁵⁷ This would provide a secure market for US shale exports and highly toxic tar sands from Canada whilst discouraging the pursuit of renewable energy by creating downward pressure on the price of fossil fuel energy in

Europe. In removing trade barriers it is feared that many of the environmental regulations established by the EU will be compromised together with labour rights, food safety rules, digital privacy laws, and the institutions of health and education which have evolved under the authority of national governments.⁵⁸ In June 2014, the EU's initial liberalisation offer to the USA confirmed that with the exception of French audio-visual services, no services will be excluded from TTIP negotiations and that many commitments are already in place to allow US corporations greater access to EU markets.⁵⁹ TTIP also seeks to allow multinational corporations access to government procurement contracts which could remove protection from further rounds of privatisation in the public sector, and in response to the USA's call for a greater role for business in setting regulation, the European Commission has proposed establishing a Regulatory Cooperation Council which would both enable businesses to superintend the agreed deregulation and allow them to identify further regulations for removal.^{60 61} In November 2014, the EU's policy department listed eight sensitive areas where it was feared that 'TTIP negotiations would undermine levels of protection of, notably, public health and safety, and the environment'.⁶² These include: medicines, cosmetics, food, plant protection products, nanomaterials, cloning, raw materials and motor vehicles.⁶³ Whereas for instance in the EU testing on cosmetics is completely banned, animal testing is not restricted at all in the USA, and in reference to healthcare and access to medicines Angela Merkel has warned 'you have to remember that America works well for those with money, but not so well for those without'.⁶⁴

Negotiations for a transatlantic free trade agreement began in 1995 among selected chief executives of large companies desirous of de-regulation, and the Transatlantic Economic Council which was established in 2007 furthered this cause.⁶⁵ Since 2009, talks have been in progress for a bilateral trade agreement between the EU and Canada, and in 2014 the outgoing European Commission announced that it had successfully concluded negotiations for the Comprehensive Economic Trade Agreement (CETA).⁶⁶ While CETA does have a sustainable development charter, albeit one that focuses on fishes and forests and doesn't cover mining, energy or transportation, its ISDS facility would allow the 80% of US-owned companies operating in the EU to make use of arbitration courts via their subsidiaries in Canada.^{67 68} France and Germany have declared their opposition to the ISDS in TTIP and there are suggestions they will lead a number of other member states to revise the original mandate that would enable transnational corporations to directly sue sovereign nations in special arbitration courts for losses suffered due to public policy.^{69 70} However, in 2014, fourteen countries led by the UK wrote to the European Commission president Jean-Claude Juncker, who has misgivings about the ISDS, urging him to include it in TTIP at all costs.⁷¹ At the G20 conference in November G20, the UK prime minister David Cameron is quoted as saying that he would like to put 'rocket boosters' under TTIP and UK government officials have revealed that one of the government's top three 'goals' is to 'complete the single market' within the EU.^{72 73} In the UK and elsewhere there is a strong support for deregulation even for the financial sector even though it is widely accepted that weak regulation was the principle cause of the 2008 financial crash.

There is opposition to TTIP on both sides of the Atlantic. Many workers in the USA will be adversely affected by the EU's proposal to abolish local government contract preferences to small businesses in order to create opportunities for European corporations.

Meanwhile, the EU intends to target 60% of the US government's procurement market, estimated to be worth upwards of \$650bn per year, and in doing so outlaw 'Buy America' provisions designed to protect local economies and local jobs.⁷⁴ In response to threats to public services the National Conference of State Legislatures has declared it will not support any trade agreement on the basis that a state should not be penalised for adopting laws or regulation in the public interest.⁷⁵ In Europe, companies will be encouraged to source more goods and services from America leading to competition which will favour American producers over European producers owing to lower labour standards and the absence of trade unions in the USA. In anticipation of increases to unemployment, the European Commission has assigned €70 billion to the European Social Fund.^{76 77} In December 2013 Ecorys was awarded a contract to assess the potential impacts of TTIP and had been due to submit its final report by the end of 2014. However, it has now been announced that the final report will not be presented until September 2016 because Ecorys has revised its terms of reference so that instead of relaying information to actually influence the negotiations, the sustainability impact assessment must only be 'completed before the end of the negotiations'.⁷⁸ It has been alleged that the reason for this is to avoid making awkward revelations that could threaten the progress of TTIP negotiations.⁷⁹

TTIP negotiations are proceeding under a veil of secrecy: the EU has placed a thirty-year ban on public access to negotiating documents while in the USA the public access block has been set for five years; moreover even government officials from EU member states will be denied access to documents revealing the demands made by US negotiators on European countries.^{80 81} The European Citizens' Initiative which was introduced with the Treaty of Lisbon and which states that with one million signatures a group of EU citizens can petition the Commission to submit a proposal in any area of EU competence, was rejected at a policy review with regard to TTIP, on the basis that only an ECI calling *for* a trade agreement can be registered. Considering these grounds for objection to be spurious, a lawsuit was filed in November 2014 to challenge the proposal's rejection by the European Commission.⁸²

Chapter X: Globalisation

Third-World Development

Where the extension of infrastructure required to serve the wider population in a developing country devolves to state enterprises committed to emulating the standard model of economic progress, there is an increased requirement for increasingly scarce and expensive resources which are already sought by highly industrialised countries who are accustomed to their availability. Therefore it is necessary both to legislate for a fairer distribution of resources and to challenge the model of progress which poorer nations aspire to.

Before recent economic advancements, the notion of a 'moral economy' was prevalent in the agrarian economies of less developed countries, and over time even cynical patrons understood that reciprocal obligations limit the possibilities for exploitation. However, with the introduction of agricultural mechanisation, subsistence farmers have been pressured into the market and labourers have been recast as factors of production. While the substitution of industrial capitalism for agrarian feudalism may provide labourers with a wage, the breakdown of the traditional patron-client relationship is likely to make labourers less secure in their occupation. The neoliberal perspective recognises the cost of labour as an input of production and a determinant of efficiency, but does not recognise the human cost of mass unemployment to societies which have an abundance of labour and limited capital. However, this fact alone does not explain why agricultural mechanisation is so prevalent because in the developing world labour-intensive smallholders usually have higher yields per acre than large-scale farms, at least for vegetables and legumes (see also Chapter VI: Genetic Engineering). Mechanised farming practice produce higher yields for ranching and crops such as sugar, wheat and rice—staple foods of importing countries who offer higher prices than domestic consumers and so provide producers with an incentive to divert production to these crops.^{1 2} In this way food prices in the developed world remain cheap and a market is created for the importing nations' technology at the expense of the developing country's foreign exchange, creating a further incentive for the developing nation to sell food abroad. While the number of industrialised nations increases and the agricultural space of developed countries is encroached upon, dependence on the agricultural produce of remaining primary producers increases, leaving them increasingly vulnerable. By replacing imported consumer goods with domestically manufactured goods, developing countries would be able to develop an autonomous industrial capacity which would protect them from exploitation and dependence on foreign goods, whilst forcing industrialised nations to moderate their industrial activity in order to make agricultural land available. However, to industrialise in the first place capital investment is required, and while the best way of obtaining capital is selling primary produce abroad, the general population of agrarian societies will be impoverished. Also, much of the capital will be spent on agricultural machinery which is necessary, as discussed, to maximise yields of ranching crops for export. Although export-oriented industrialisation was favoured over import substitution in Southeast Asia, and Southeast Asian production has been configured with regard to the diverse consumer wants of the West, the success in meeting these wants is testament to the success of centrally

planned investment in targeted sectors. A state which utilises elements of command economics, preferential access to credit and the establishment of relevant research institutions can provide the necessary stimulus to particular industries directly and efficiently.

In developing countries subsidising agriculture to the subsistence level would remove the incentive for marginal land to be farmed which would reduce the need for genetic engineering and would allow more land for housing and manufacturing for domestic purposes. In developed countries limiting subsidies to the subsistence level would maintain food security without exerting downward pressure on world food prices which inhibits trade between developing countries. Although self-sufficiency in food is generally desirable it is not a realistic objective in the short-term as the agricultural sectors of many nations are highly specialised and not configured to comprehensively meet domestic demand.

African Statehood

Where states did exist in Africa before colonial rule, boundaries were rarely delineated with precision and were often fluid, both because of the occasional overlapping of territories and because communities were based on kinship which would gradually change over time with intermarriage and migration. The borders imposed by imperial nations were reflective of the strategic and economic interests of the imperial powers, while the national economies of arbitrarily delineated states were impeded by a lack of access to a reasonable complement of natural resources. In addition, the arbitrary boundaries which were imposed were liable to force distinct ethnic communities into cohabitation and in some cases to cut across them. Nationalism was enforced by a previously unrecognised, Western-educated 'elite' who, justified by the bureaucratic impossibility of addressing the needs of diverse ethnic communities, proceeded to make efforts to substitute national identity for ethnic identity. However, attempts to build state infrastructure were mostly confined to areas where the natural resource base was conducive to large-scale exportation projects. In other areas attempts to build infrastructure were minimal. Despite the fact that indigenous elites eventually formed liberation armies which ostensibly achieved independence from colonial rule, their resemblance to colonial powers in terms of their values and ideology was so close that effectively they allowed imperial forces to maintain proxy rule over Africa. However, inheriting no modern infrastructure, and being required to fabricate rather than merely simulate state bureaucracy, indigenous 'elites' revealed that their Westernisation was, to a large degree, superficial.

It is necessary to look beyond the aspirations of indigenous 'elites' for the legitimacy of Western models of statehood because the willingness of these groups to emulate Western nationhood is rather the product of their Western education and the transmission of Western ideology than any reflection of the needs or wishes of the African people they purportedly represent. Yet the Western model of progress is still considered by the West to be the natural trajectory of the African people and so if a nation state fails to provide for its people satisfactorily, the failure is likely to be ascribed to specific leaders and regimes rather than the essential tension between the African character and the Western model of development. Expecting members of cultures whose coherence has always depended upon sympathetic

attachments confined to the here and now to successfully envisage the remote repercussions of their actions is setting the members of these cultures up for failure. Even though African states do have parliaments, national assemblies have lost almost all their power to core executives. This is not because of any conscious desire to return to pre-colonial methods of governments but because these former methods of governments reflect the nature of African people, and so African governments will incline to these structures though they may not be compatible with the Western model of development.

Alex Thompson argues that ‘had African workers been paid more for their labour during the colonial era, enough capital may have been accumulated locally to ensure that post-colonial governments inherited a much healthier situation’.³ Although it is undoubtedly true that African workers were exploited during the colonial era, pre-colonial Africans were largely hunter-gatherers so had no experience of saving agricultural surpluses to develop complex infrastructures. By concentrating on the low wages paid to Africans for their labour, the more enduring imposition of fundamental societal change is not given sufficient attention. Of course now that Western-style states have been established and the population has grown accordingly, there may be no viable way of Africans completely returning to a more traditional lifestyle: agriculture is the only way to serve the needs of the population. However, organised farming doesn’t necessarily entail more complex modes of production.

Although the export of minerals from Africa is reasonable because of their greater value to infrastructures in economically developed areas of the world, the case for exporting food from Africa is less valid. Patrons who distribute food to where the demand rather than the need is greatest bear some responsibility, but international trade is the cornerstone around which corrupt power structures and communication lines have been built. The neoliberal economics system these trade relationships adhere to insists on specialised monocrop agriculture for African countries, leaving African countries unable to hedge against the variability of international demand and without the means of self-sufficiency. As part of the structural adjustment programmes explored in the section ‘Global Politics’ later in this chapter, Western nations agreed to pay farmers the market value for produce, but when it transpired that this made goods prohibitively expensive for the urban middle-class upon whom African countries’ hopes of development were pinned, African countries set maximum prices for food sold to urban areas. However, this placed the burden on the farmers producing staples who would either be inclined to revert to subsistence farming or migrate to cities as their wages fall. But as most urban dwellers would not be able to import food because of the weakness of African currencies, governments would not be able to let prices rise too much. Meanwhile, the rural poor would lose out whether produce was being shipped abroad or directed to the cities. As discussed in the previous section the activities of the urban middle-class and revenue from international trade provides capital for economic development, but the procurement of machinery for agricultural exports depletes the exporting nation’s foreign exchange. In this way the domestic currency is devalued and reliance on exporting primary produce continues.

Even where enough capital from transnational corporations has been spared by the state for infrastructure development, progress is not always reflected in accepted quality of life indicators. In Botswana for instance, although the foreign management of diamond mines has resulted in the country having the 83rd highest GDP per capita in the world and the 2nd

highest in sub-Saharan Africa after Gabon, and some of the proceeds have improved health, education and welfare provision; Botswana is ranked 156th in terms of life expectancy.⁴ Foreign investment has resulted in labour organisations being compromised and much of the money has been appropriated by the state bourgeoisie who have taken advantage of foreign investment to create more opportunities for patronage, such as increasing the military budget.^{5 6} If some degree of modern infrastructure can successfully exist in Africa then it is imperative that the clean development mechanism (CDM) is implemented in African nations so that instead of being forced to import oil using their weak currencies, African countries can benefit from domestically produced energy. Also, because the industries which have arisen in Africa have substantial energy demands, without moderation and adaptation the continuation of these industries will prove unviable as fossil fuel and mineral resources become scarce and the effects of global warming increase, to devastating effect in much of Africa.

African nationalist movements succeeded in uniting people behind the nationalist cause but the common enemy that was colonial rule was only eliminated in name because African nationhood itself derives from the linear demarcations of imperialism: the leaders of African nations are bound to the nominally absent powers in ideology. However, the notion of emancipation from foreign rule provided convenient cover for nationalist leaders who could now develop client states without attracting the immediate censure of the populace. Perhaps with the assistance of self-deception, perhaps not, African national leaders like their colonial predecessors, made development a priority on behalf of the people they ruled whilst expropriating their surpluses. While the fact that secession has only occurred in the cases of Eritrea and South Sudan can be interpreted as a sign that over time national boundaries have enacted a similar process to the more organic migration and intermarriage trends which would otherwise have been wrought upon ethnic groups, the ethnically motivated genocide in Rwanda in 1994 in which 800,000 people were killed following the murder of the Hutu president shows how strong ethnic divisions may be felt within African nations.⁷ Secession may be seen as the solution, but it may yet result in a territory being shared by several tribes whose differences are emphasised as the project of nation-building is undertaken, as in South Sudan where civil war has ravaged despite almost 99% of the population voting in favour of independence in the 2011 referendum.

Although in the past efforts were made by colonial powers to organise communities into regional blocs, the local knowledge of colonial powers was not extensive enough to discern subtle differences among tribes with a similar outward appearance. For instance, the Kirdi tribe of north Cameroon had practised Islam and had subjugated the Fulbe tribe centuries before, but colonial authorities considered them as part of a single group for administrative purposes.⁸ As well as the difficulty of identifying tribes, where tribes share the same territory the danger is that the tribe with the most members will dominate the allocation of resources. Because allegiances to tribes are more rigid, support for parties appealing to the largest tribe might be sustained even if the party or parties supporting the largest tribe are inefficient or corrupt. For this reason, the proportional representation electoral system is particularly suited to Africa; as long as the different parties representing specific tribes are sufficiently numerous, support between them will be relatively evenly divided and some degree of local representation will be maintained; government could be made to more closely

resemble the consensus rule of the 'pre-hegemonic' state. Unity has been cited as a reason to preserve single-party states but although single-party systems were the mode of governance across pre-colonial Africa, now that whole nations rather than small states or communities are required to act as one, the lack of experience of envisaging unseen and remote concerns, as discussed earlier, makes the historical analogy redundant.

Although in the case of Africa most of the beneficiaries of trade which is facilitated by an exploited labour force are the owners of international capital abroad, Marx's description of a state which assists the bourgeoisie in its exploitation of workers does apply in the sense that trading licenses and other favours are sold by state officials to businessmen. The alliance between the corporate and bureaucratic bourgeoisie is also evident by how democratic elections are notoriously prone to manipulation by entities allied to foreign trade interests. The potential for election propaganda to deceive the public is enhanced by the limited experience of democracy among African nations, and even where elections have taken place as in Kenya in 1969, 'it is very difficult to identify any policy decision or legislative act which is traceable to the electoral outcome'.⁹

In some cases post-colonial governments in Africa have been highly ineffective and for this reason as well as others including the distribution of weapons to African states which from USSR and the USA alone amounted to \$4.3 billion between 1967 and 1978, the militaries of some African states have instigated the deposition of regimes.¹⁰ However, despite endorsing liberal democracy in Africa, Western states have opted not to be embroiled in confrontation which would both be costly to Western armed forces and sufficiently reminiscent of past interventions to be distasteful to their electorates. If subjects believe that rulers are failing to maintain or create conditions which provide for human needs or are conducive to human dignity, it may be proposed that rulers deemed to be in dereliction of their duty should be held accountable to divine authority. Such is the rationale of Islamists. Archbishop Joseph Welby's opinion that society should be structured to be more supportive of the individual's decision to choose good over evil is not especially controversial but the rule of Sharia law is because, by *enforcing* the choice, an individual's resolve to resist evil is not challenged.

A lie which is told to oneself can be extremely dangerous because the actions it forms the basis of are reckoned to be entirely conscionable. While an avowal of difference between black and white people remains difficult, on a conscious level Westerners are liable entertain the same aspirations for Africans as they do for themselves; so when an African state fails to conform to the Western model of statehood, the real cause may not be identified. In adopting an attitude which is merely equal and opposite to the former aberration of direct colonisation, there is further divergence from rectitude: while equality as opposed to *equity* is espoused, the perpetration of further crimes can operate under a cover that would not be available in the absence of the self-deception. Of course, self-deception is also practiced by Africans as they seek to emulate Western success and in doing so deny the destructive potential of foreign capital.

International Organisations

After the Second World War, European economies were in no position to refuse aid from the USA when it arrived in the form of the Marshall Plan otherwise known as the European Recovery Program, which was designed to rebuild European economies. Even in the 1930s, Britain had realised that it couldn't compete with the USA and so a currency union, the 'sterling area', was created to maintain the strength of the pound and protect the UK's trade with Commonwealth nations and other nations within its sphere of influence.^{11 12} However in 1944 the Bretton Woods agreement came into effect which pegged all international currencies to the dollar and gave the dollar exclusive gold convertibility. The USA proceeded to become the world's major export economy and consolidated its strength by investing heavily in Germany and Japan who were reinvented as allies and bastions of economic influence in other world regions. In receipt of direct investment, aid or assistance from the USA these countries would be enabled to continue buying US products with demand drawn from their respective vicinities, and it was envisioned that if the resurgence of these defeated countries could be constructively guided the mistake made after World War I of failing to accommodate the inevitable resurgence of the defeated power would not be repeated. The frustration of Germany had been one of the factors that led to the WWII and America was determined that the same mistake would not be repeated.

The outbreak of war in 1914 can be seen in the context of increasing economic activity which for the various spheres of influence within the European continent entailed increased competition which could not be entirely displaced to the European powers' respective colonies. While the impact of WWI and the Great Depression had reduced the potential for conflict resulting from competitive trade between the World Wars; by continuing the trend, post-WWII, of economic growth which began with the industrial revolution albeit with the main locus as the USA; the rest of the world would soon begin to experience the same tension experienced in Europe before World War I, albeit without resorting to open warfare on a worldwide scale. In order to sustain the demand for manufactured goods which followed the war effort in WWII, new demand would have to be fabricated and then subtly woven into consumer expectations. Whereas the shift of authority away from the densely populated continent of Europe with its numerous ethnicities and autonomous territories made territorial war less likely, the seeds of future conflict were being sown by the new world order which would, together with its protégées, create trade surpluses and engender demand for its exports to an immoderate extent. Real efficiency of production—that which factors in the scarcity of future resources as an input in its own right—would not necessarily be matched by gains to the efficiency of resource utilisation, while populations would grow on the basis of the expectation of continued wealth, which would consolidate the trend towards profligacy. The use of new-found resources and initiatives, applied in such a way that their succession by ever-more efficient methods is essential, is a waste of their potential to contribute to peace and sustainable prosperity and represents a paradox in that demand needs to be kept high to stimulate supply but supply will struggle to meet the long-term demand thus fabricated.

In Europe after WWII a project for greater political and economic union was undertaken to forge an alliance of interests that would reduce the risk of future conflict. From the beginning there were differences in opinion over what form the union should achieve: West Germany, as discussed, had been strengthened by US intervention following WWII

therefore its interest in a common market would be its provision of ‘vital space’ for Germany industry; whereas France, distrusting US hegemony, wanted the European common market to rival the USA. Also, France feared that its strong agricultural sector would suffer with the elimination of tariffs and so pushed for it to be granted protection.¹³ This was not generally deemed to be unreasonable—indeed even the World Trade Organisation recognises agriculture as being exempt from trade tariffs.¹⁴ The Common Agricultural Policy (CAP) which was created in 1962, and which was the single greatest expense to the EU, taking over 90% of the budget in 1970 and 42% of the budget in 2011, did however ensure that farmers, who in the new common market were under pressure to co-ordinate with farmers in other countries and specialise their production, were guaranteed an income to do so.¹⁵ ¹⁶ Because of the bureaucratic difficulties attending the anticipation of demand on a larger scale, and because farmers were paid by the EU for farm output when the market price fell below a certain level; farmers were less willing and less able to respond to market signals and much produce was put into storage and paid for at the support level. Eventually where a surplus was anticipated farmers were encouraged to leave fallow land rather than create surplus produce.¹⁷ If farmers were still to be subsidised, but in the first instance paid at the market price, farmers would be able to adjust their production in accordance with market signals. Although subsidies in this scenario may constitute a more blatant form of protectionism, it would be preferable to land and produce being wasted. Great Britain’s reluctance to participate in the CAP was because their agricultural sector was relatively small: not only did the price of food increase in Britain with the policy but Britain received little benefit in return for its contributions to it. Britain was a nation which had long since lost its reliance on primary industry and by the 1980s was in the process of reducing its manufacturing activity as well. The country was undergoing sectoral shift, but still the CAP can be seen as important, both in ensuring that farmers were paid enough to continue production within the common market and thus contribute to food security, and also in its role of saving the UK from the unethical practice common among developed countries of expediting their own sectoral shift by detaining other countries in primary production.

The EU is formed of several institutions of which the principal body is the European Commission. In 1957 The Treaty of Rome gave the Commission the principal right to propose the texts for laws to the European Parliament—a body of MPs elected by proportional representation from among the member states. While the Parliament usually votes by party, in the European Council and the Council of Ministers—collectively known as the Council—voting is by nation and it is only the heads of state or certain ministers, respectively, who are in attendance. Disagreements between the Council, essentially an intergovernmental body, and Parliament, a more supranational entity, are resolved by the conciliation committee after a second reading, although if no agreement can be reached still, parliament can reject the proposal by majority vote.¹⁸ The presence of these different dimensions to the political institution reinforces the degree of representation, while the interaction between the Council and the Commission ensures that there is a fine balance of power between the nation states and the central authority. Until the introduction of qualified majority voting (QMV) which was implemented with the Single Act in 1992, the power of veto had been in force in most situations. This started with the ‘Luxembourg compromise’ which was a consequence of de Gaulle’s insistence that while the CAP should come from the

budget of the community, it should be determined not by the European parliament but by member states. Although minority interests can be overridden with the implementation of QMV, concerted efforts are made to avoid alienating minorities, and opt-out clauses are sometimes accepted as in the case of the British opt-out from the social chapter and the single currency, and Denmark's opt-out from the single currency and defence. While unanimity was the procedure for legislative decisions each minister in the Council of Ministers could in theory exercise their veto and pressure the Commission into amending its proposal, but with the introduction of QMV, the Commission has been enabled to run more efficiently as its sole right of initiative is not so often obstructed.¹⁹ Its strength is however moderated by the fact that the unanimity procedure still applies in some areas and because QMV does not operate by a simple majority. This complexity has helped the Union to achieve the right degree of centralisation, as has the presence of two kinds of Union act: regulation, which is binding in its entirety on all the member states and directives, which are only binding as to the result to be achieved, leaving considerable discretion for member states.²⁰

The Security Council of the UN still operates by unanimity and differences between the five founder members with veto power—the USA, the UK, France, Russia and China—are liable to make consensus on issues related to its remit of peacekeeping or peace enforcement, sanctions and military action extremely difficult. In the General Assembly of the UN, which is its main deliberative organ, policy requires a two-thirds majority to be passed. This has made the organisation increasingly unappealing to more influential countries as they resent the fact that despite their larger economies and sometimes larger populations, the third-world increasingly dominates the UN's agenda. Furthermore, tensions that exist and the chaos that can ensue with the multitude of conflicting agendas are conducive to the identification of common enemies. In the case of North Korea and Iran for instance, states have been disinclined to be seen breaking rank with a consensus of hostility and attempt negotiations because to do so would threaten a fragile alliances built around opposition to pariah states. By not maintaining diplomatic relations however, the pariah state is more inclined to fulfil the role assigned to it by the group, and though this may be validating for the group, it is not ultimately constructive. While the value of consensus between the developed and developing world should not be underestimated, the cost of not maintaining diplomatic relations with North Korea is massive, not only because of their nuclear capability, but also because of the poverty economically isolated regimes experience in the age of globalisation. In 1999, UNICEF estimated that the sanctions imposed on Iraq between the two Gulf Wars led to the deaths of half a million children.²¹ Of course when a rapprochement is implemented, the resurgence of the regime should be phased so as not to embolden it before latent hostility is fully appeased—hostility which would exist among sections of the population rallying behind the target government as well as the target government itself. Also, as a consequence of the popular support the target government experiences it may perceive a duty to its people not to accept more modest terms. An impasse is likely here because members of the international community authorising the sanctions are likely to be under the same pressure from their colleagues. For this reason considerable political will may be required to achieve a resolution.

In October 2015, after 20 months of negotiation, Iran's parliament approved a deal with China, the USA, Russia, Germany, France and the UK which authorised the retraction of

economic sanctions against Iran in return for Iran's compliance in limiting sensitive nuclear activity.²² It is important that this success is built upon because the experience within the Shi'a tradition of re-contextualising the Quran could prove instructive to areas of the Middle East where there is a need for a middle-way between the desire to return to eighth century conditions and the naïve admiration of Western culture or at least Western culture as it is presented by some media (see Chapter XI: Islam). Sometimes the diplomatic pressure exerted by the UN can be salutary. Expressions of condemnation of the apartheid regime in the General Assembly encouraged more members to take a position on the matter, and off-stage diplomacy instigated by former UN Secretary-General U Thant helped to alleviate tension during the Cuban Missile Crisis.^{23 24}

From the 1970s—with the greater representation of the third-world—the USA was often on the losing side of UN resolutions, and in 1982 was voted against on 24 out of 157 occasions in the General Assembly.²⁵ At the time the influence of the third-world was increasing and many perceived that the United Nations Educational, Scientific and Cultural Organisation (UNESCO), a society which had been created to establish the 'intellectual and moral solidity of mankind' was being ignored by the US and UK.^{26 27} Following the end of the Bretton Woods era and the oil embargo consequent to the 1973 six-day war, many third world nations sensed that the USA's dependence on third world countries for raw materials would threaten their hegemony. The global 'South' was emboldened and demanded a new international economic order which enumerated their aspirations and the duties of developed countries as they were perceived.²⁸ The West was not prepared to concede to this viewpoint, and so from this point on committed to a greater degree of subterfuge. The USA's tough attitude towards inter-governmental organisations (IGOs) has continued as shown by the appointment of Paul Wolfowitz, former Deputy Secretary of Defence and chief architect of the Iraq War, as president of the World Bank in 2005.

The Great Society was a project undertaken by the Kennedy and Johnson administrations to help low-income Americans—especially those in Black communities—share in America's economic fortunes. The programme was very successful and over its course the number of Americans living below the poverty line reduced from 22% to only 13%.²⁹ However at this time the USA was burdened with the Vietnam war which cost the government \$738 billion at 2011 parity, and in the period between 1965 and 1970 US corporate profits declined by 17%.^{30 31} The USA's inability to back up its liabilities with gold heralded the end of the Bretton Woods era and the beginning of the era of the USA as a deficit nation.³² Not discouraged, economists reckoned that as long as the USA could continue to attract capital from the rest of the world, capital flows could be turned into investments, loans and financial instruments in Wall Street and used to create domestic wealth to generate demand for the goods of the world's remaining surplus countries, whose profits would in turn return to America because Wall Street was still the world's most acclaimed financial centre. By the sheer inventiveness of Wall Street, wealth was being generated for the American public beyond that which the citizens of those nations actually producing capital flows to the USA could afford for themselves. The USA was also helped by the fact that many countries had dollar assets which would lose value should the dollar devalue. Furthermore, the Organisation of Petroleum Exporting Countries' (OPEC) decision to restrict supplies of oil upon seeing the price of gold increase massively against the dollar

gave strategic advantage to the USA because although the USA did import oil from the Middle-East, it did not import as much as Europe or Japan, the unit costs of whose exports consequently increased.³³ Even when Japan responded to rising costs by shifting to high-tech industries, the ensuing profits were still invested into the USA.³⁴

Peacekeeping in the UN under the leadership of Dag Hammarskjöld was often referred to as 'preventive diplomacy' and was understood to require the consent of host states.³⁵ Since that time however, the remit of UN humanitarian intervention has extended to peace *enforcement*. This differs from simple peacekeeping on the basis that while peacekeepers act evenly to all parties, peace enforcers can act against any parties antagonistic to a peace agreement in order to achieve the settlement of a conflict. Although in defence of peace enforcement it can be argued that peacekeepers can never give succour entirely indiscriminately anyway, compliant as they must be with powers in the lands where they seek to act, the legitimacy of the peace enforcement depends very much on the discretion of the enforcers in their interpretation of the threat to be defended against and the fairness of the peace treaty they uphold. Peace enforcement missions could be manipulated to enforce peace treaties which though unrealistic, are nonetheless upheld as sacred upon their violation by a disfavoured party, whose infringement is then acted upon. Conceivably a peacekeeping or UN observer mission may even be a guise for the agitation of the peace: for the provocation of a disfavoured party, to turn popular support against it and cast politicised intervention in a favourable light. However, much of the reason peace enforcement missions are favoured is because of the genocides in Srebrenica and Rwanda, where humanitarian intervention is unlikely to have been politically motivated and acting under Chapter VII of the UN charter was necessary to 'protect civilians under imminent threat of physical violence'.³⁶ In this context peace enforcement can be seen as a compromise which recognises the limitations of the traditional definition of peacekeeping and the impossibility of obtaining consent where the government is complicit in violence which is demonstrably disproportionate to the threat to domestic order, but where it is also recognised that force must be moderated in the absence of a threat to international security.

Although the governments of democratic member states are accountable to the media, due to their need for profitability corporate media is likely to favour coverage of events where there is acute conflict rather than chronic conflict; where the plight of afflicted people is less dramatic, the story is less engaging. However, although aid contributions as a percentage of OECD members' Gross National Income were only 0.3 % as of 2013, contributions have increased fairly steadily since 1997.³⁷ At the same time non-governmental organisations (NGOs) have been formed on behalf of the global civil society, as 'private organisations that pursue activities to relieve suffering, provide basic social services, or undertake community development'.³⁸ However, while NGOs are likely to attract people who attribute the suffering in the places they visit to the intervention of international and global institutions, because humanitarian crises require a co-ordinated response, NGO's may be required to abide by the mainstream consensus to attract public support. This adoption of neutrality leaves NGOs prone to the criticism that they help to vindicate insufficient government contributions and the pernicious effects of globalisation. In 1994 the World Bank did establish an inspection panel to hear and investigate the claims of civil society groups who believe they have been adversely affected by Bank projects; however, the process of

filing a complaint with the inspection panel has been complicated by the introduction of an 'early solutions' pilot which casts the panel in the role of arbiter between the Bank and the complainant rather than as an enforcer of the bank's safeguarding policies.³⁹

The original aim of the International Monetary Fund (IMF) was to create a 'stable and predictable monetary system that would avoid the competitive devaluations that had characterised the pre-war era'.⁴⁰ The IMF acted to recycle global surpluses by paying credits to countries experiencing difficulties with balance of payments. However, following the end of the Bretton Woods era and the convertibility of dollar reserves to gold, its function became less about exchange rates and more about providing support for countries to undergo a process of trade-liberalisation. This was to be achieved either by providing low-interest loans to support major investment projects or by following structural adjustment policies (SAPs) that would help integrate struggling nation into the neoliberal world order. In many cases the price exacted for IMF loans in the third world was the dismantling of social services and the transfer of assets from domestic to foreign owners.⁴² The equivalent facility in the EU is the European Regional Development Fund (ERDF) which prevents disparities among the EU's members by helping to modernise the economies of newer members. While this facility does help them to offer a greater contribution to intra-union trade; to some degree, the ERDF is allowed to dictate which areas of newer members' economies need particular attention. In both cases, the IMF and the EU have the defence that the acceptance of loans and membership, respectively, are voluntary. However, the pressures which have brought about economic crises can be attributed to globalisation which has favoured and been promoted by the nations and organisations which cast themselves as debtors of poorer nations. The fact that global markets have allowed richer countries to benefit at the direct expense of poorer ones is shown by the rise in food prices: between 2006 and 2008 the price of rice increased by 217% and the price of wheat by 136%.⁴³ This is in part attributable to the activities of large banks who, having lobbied for the financial deregulation of the derivatives market, have since speculated on food prices.⁴⁴ Another example of the ill-effects of global markets is found in the case of the loans offered to countries in the Eastern bloc to develop infrastructure in the 1970s. The low rate of interest which was charged by Western banks to begin with soon increased resulting in austerity measures and social unrest.⁴⁵

The world is rapidly changing and although regional alliances such as the EU do provide a forum for national interests, global governance is heavily influenced by the globalisation of international economic relations. However, while a society's geographical situation in the world would seem to be less significant today, geography has its legacy in ethnicity and despite efforts to relegate this reality, ethnicity remains an ineffable element of personal identity. Similarly, religion, as the social aspect of the non-material expression of self, has an important place, but while the capacity for greed—perhaps the lowest common denominator of the human condition—is upheld as a uniting force, cultural relativism is inadmissible. At the Millennium Summit, world leaders set out objectives including: eradicating extreme poverty and hunger, achieving universal primary education, promoting gender equality, reducing child mortality, improving maternal health, and combatting HIV/AIDS, malaria, and other disease. Impressively the proportion of the world's population living in extreme poverty in 2015 is less than half that of 2000 albeit much of this decline is attributable to endogenous changes in China, India and South-East Asia.⁴⁶ However, the

terms in which the Millennium development goals are revealed show how IGOs are committed to a data-led approach rather than a more discrete approach amenable to future challenges such as natural resource scarcity and global warming. Also the good intentions of IGOs come up against the economic restraints which its constituent members are bound by: the transnational corporations and media empires which weaken the political capacity of the nation states of which IGOs are formed. It is important that the power of global governance increases in line with world markets so that decisions about corporation tax rates and the movement of financial assets don't always devolve to nation states committed to avoiding strategic disadvantage. In this way infrastructure can be made more resistant to future threats. More efficient IGOs would also have an important role in co-ordinating the changes to the supply chain which will be necessary as China increases its consumption of non-traded goods such as health care and education.⁴⁷

In the Covenant of the League of Nations which was written after World War I, Article 12 required states to observe a three-month cooling off period before resorting to war so as to avoid war being fought on a dubious pretext as it had been done, arguably, in Europe in 1914.⁴⁸ Arguably, such a cooling off period is not possible today: the destructive potential of modern weaponry is such that aggressive action can be taken so decisively that defensive action cannot always be delayed. It was this reasoning which informed the USA's argument against waiting for the UN to approve military action in Iraq. France, Russia and China insisted that clear evidence would need to be provided of Iraq's nuclear potential for them to give their support to the intervention, but when it seemed that the reports of the weapons inspectors would not provide this, the USA and the UK proceeded without authorisation from the UN Security Council despite President Bush's announcement in September 2002 that the USA would 'work with the UN Security Council for the necessary resolutions' and despite the unanimous security resolution SCR1441 which gave Iraq 'a final opportunity to comply with its disarmament obligations'.⁴⁹ This crisis has weakened the integrity of the UN because the USA and the UK have not experienced a substantial loss of diplomacy as a result of the transgression and the Chilcot Inquiry, designed to investigate how the convictions of the US and UK was formed, has been over a decade in coming: long enough for the nations involved to argue that distance has been created between themselves and the culpable procedures and actors; though the procedures, if not the actors, may be largely unchanged.

Despite the competence of its political institutions, Europe remains dependent on the USA for defence. However, just as the USA's relationship with Japan and Germany has changed since the end of Bretton Woods in the 1970s when the USA became a trade deficit nation, the symbiosis of US military strength and European diplomacy may be subject to flux. The current solidarity of the USA and EU alliance is not only the result of the EU's comparative weakness in military terms but also the USA's recruitment of European support into the wars which followed the 2001 attacks on New York as well as the appeals to the USA from anti-Russian quarters of Eastern Europe whose hostility to Russia has increased since the Ukraine crisis. Although the USA's military strength within NATO was integral to the resolution of the conflict in Bosnia and Herzegovina, the danger is that with the decline of the US financial sector on which US hegemony has been founded, the USA's strategy, and the EU's by proxy, will increasingly take on a martial character. Even though the EU's primary incentive for assimilating Eastern European countries into the union was so that the union

might be provided with cheap labour which would enable the EU to maintain its economic strength even in the face of increases to the price of raw materials, the EU is perceived by Russia to be increasingly aggressive, and this perception has contributed to a decline in diplomatic relations between the two parties. Better diplomatic relations between Russia and the EU could provide a context for diplomatic relations between China and the EU and between the USA and Russia.

In the absence of a surplus recycling mechanism the deficit countries of Europe have grown accustomed to buying produce of the surplus countries rather than generating their own so much. In the past this has suited both parties as while countries like Germany have found a market for their produce, in countries forming Germany's export market levels of consumption have increased in the same way as in much of the rest of the world vis-à-vis the USA's strength. However, whereas the USA was able to continue to absorb foreign investment following the loss of its trade surpluses because of the foreign investment it attracted; following the financial crash of 2008, the weakening of the dollar since 2008 and the loss of one-quarter of aggregate worldwide demand, the Eurozone has been prevented from adapting to the loss of trade surpluses in Europe by its failure to recognise the limitations of a currency union without a Keynesian surplus-recycling mechanism.^{50 51} Although countries within the Eurozone can undertake internal devaluation, a currency devaluation mechanism or a requirement for surplus nations to invest in deficit nations would have been an efficient way of preventing countries from running trade deficits and would have helped prevent them from accruing debts and budget deficits. The absence of tax harmonisation has also contributed to the difficulties experienced by the Eurozone; without tax harmonisation countries have an incentive to move to wherever tax is lowest, which results in downward pressure on tax across the Eurozone and makes government investment in public services more difficult. In banking as well, the single-market principle means that banks regulated by any European government can move anywhere else in the EU, and because the confidence in a bank depends increasingly on the national government's ability to restore deposits in the event of a financial crisis, banks and investment will migrate from countries experiencing economic difficulties, which will result in further losses of confidence in these places.⁵² Assistance has come in the form of the European Financial Stability Facility which borrows funds on behalf of Eurozone countries that can in turn be loaned to countries whose economies are failing because of the 2008 crash. However, as more states fail, the higher the contributions will be for the remaining states and the less collective wealth will exist as collateral. This will result in higher rates of interest as markets will infer the likelihood of default based on the presence of a dwindling core of creditor nations.

The problems Greece has experienced make an interesting case study. The Greek government in power before 2004 understated its budget deficit by 7% in order to be admitted to the Eurozone, and Greece then used its Eurozone member status to borrow money at a low-interest rate in an attempt to stimulate the economy and create tax revenues to address the deficit. However, it would have been difficult to challenge Greece's borrowing behaviour in time to forestall the crisis it experienced because at the time Germany was borrowing heavily to meet the costs of reunification.⁵³ Moreover, a founding principle of the Eurozone which was established in 1999 was that Eurozone budget and tax policy would devolve to member states. Having announced it had been understating its budget deficit

figures in October 2009, Greece was prevented from borrowing in the financial markets. This hastened the decline of the nation's economic stability and eventually, acting in accord, the IMF, the European Central Bank and the European Commission issued funds to Greece totalling more than €240 billion.⁵⁴ However, because these funds have been used to pay off Greece's international loans, its structural problems have not been addressed and the economy has shrunk by one-quarter in the last five years.⁵⁵ In August 2015, European finance ministers agreed to a new deal which would exact commitments for the Greek government to implement austerity measures including raising the retirement age and cutting pensions in return for loans of up to €86 billion over the next three years.^{56 57}

Sectoral Shift

At the beginning of the twentieth century improvements in seeds, fertilisers and the implementation of mass farming methods meant that fewer farm workers were needed, but while farmers lost their livelihoods people in cities welcomed lower food prices. However, the inability of farmers to repay loans they had taken as a response to price declines, and the decline of rural demand for manufactured produce adversely affected the manufacturing sector and led to unemployment. In 1933 and 1938 Agricultural Adjustment Acts were implemented by the Roosevelt administration which increased pay to farmers by reducing output. Conversely, many economists today, fearing the competitiveness of more prominent foreign markets and wishing to maintain high employment in spite of labour productivity gains, advocate policies to increase demand and output.

By the time of the crash of 2008 77% of the USA's GDP came from the tertiary sector.⁵⁸ However, although the USA had the capacity to import foreign goods en masse, American wealth at this time was not experienced by the masses. At a time when the price of basic commodities was increasing, the so-called Walmart business model gave low-income citizens access to consumer goods at low prices. However, the necessary gains to labour productivity had been achieved by increasing automation, lowering the standard of working conditions for many Americans, and by lowering wages. Also, US multinationals who were based in China could use China's low production costs to export to US domestic markets as well as the rest of the world. Because the sacrifices made by workers could, like increases in corporate profits, only be made acceptable to the public by maintaining or augmenting the purchasing power of American citizens, the financial sector increased demand for imported produce by encouraging Americans to take on household debt in the form of mortgages, credit cards and home-equity loans. As in the UK under Thatcher, increasing levels of home-ownership meant more people had collateral for personal loans. This resulted in household debt becoming self-reinforcing as mortgages became the source of and reason for increased borrowing. Since the 2008 crash there have however been attempts to prevent homeowners from defaulting on their payments through refinancing initiatives. One such initiative was developed by Senator Jeff Merkley who developed a pilot scheme called Rebuilding American Homeownership which utilised a Refinance Trust funded by bond sales. At the same time as reducing monthly payments for homeowners, under this scheme the government would benefit from borrowing at a rate which would be 2% lower than the rates of the

mortgages it buys; it is reckoned this difference would cover the costs of defaults, administrations of the trust and other expenses.^{59 60}

Although in the USA personal consumption as a percentage of GDP continued to increase after the Bretton Woods era and US GDP has risen as a proportion of world GDP as well in recent years, it is questionable whether this has translated into a higher standard of living for American citizens.⁶¹ In order to avert the realisation that their labour, which is governed by increasingly automated processes, is deprived of dignity, the twenty-first century employee, in attributing purpose to the function of their employment will occupy the role of consumer in their leisure time; thereby projecting the working conditions they experience on other producers, and perpetuating a vicious cycle. From the perspective of innovators, it is right that if the wages have come more from productivity increases which have their origins more with the innovator's intellect than with the toil of the labourer, the labourer should exact tribute in the form of increased consumption to create profits which go towards investment in further advances and further profitability. However, it would be more in the national interest if some of this money went directly to the government for research purposes because the research conducted by corporations is consumer-orientated, rather than philanthropic.

Advances in science have been made possible by the specialisation of labour but because specialisation restricts the scope of human comprehension, the further the process of specialisation continues the less a perception of the limits of specialisation can prevail. Perhaps the inter-disciplinary co-operation which comes into being when specialists rally to defend specialisation could instead help to revise technocratic aspirations, and envisage how specialised skills could be adapted for new and more holistic purposes.

Global markets have expedited the trend towards automation because while imports in developed countries tend to be in labour-intensive industries, exports tend to be in high-technology industries which require relatively little labour. Democratic governments, while favouring global markets for economic growth, must still be very careful to not make too obvious the reality that the movement of goods and services represents a concession to the ultimate free-market ideology of a completely free movement of labour and capital; as for many this might entail drastic wage cuts and relocation to far-flung areas of the world (see Chapter II: Immigration). If workers from China for example were to produce manufactured goods within the USA, the wages of and demand for US workers would decrease. As populations and educational opportunities across the world increase, the possibility of domestic workers in the 'old world' being out-competed increases (see Chapter II: Entry-Level Employment Prospects). As this happens, more and more jobs would be threatened and the economic advantages achieved by an established developed nation adhering to pure free-market policies would devolve to fewer and fewer people. To protect the wider population in developed countries it is necessary to reduce the impact of globalisation either by employing trade protectionism—which would have the additional benefit of mitigating environmental externalities—or by arguing for the integrity of national culture: arguing that the economic benefits of mass migration are less significant than the cultural losses. Even with substantial changes to a country's skill profile, given the labour productivity gains which have attended sectoral shift in the developed world, the transference of workers from low-efficiency to high-efficiency sectors is likely to entail mass unemployment. The 2008 crash can be seen in the context of an attempt to fabricate demand which could never legitimately issue from

endogenous industry—partly because the inputs of production are increasingly sourced from abroad and partly because the means of production everywhere have relied on oil, the price of which increased from around \$25/barrel at the turn of the century to \$145 in July 2008.⁶²

Although high-technology industries have low labour requirements, high levels of employment are required to sustain domestic demand; furthermore the labour productivity gains of high-tech industries are not necessarily reflected in economical material throughput (see ‘Proposals’ later in this chapter). In order to moderate the expansion of high-technology industries and to distribute the inconvenience of worker redundancy more equitably, a reduction in aggregate working hours is necessary in the West, and should be managed as far as possible by reducing hours worked per capita. While this is not done, and the unemployed population faces the prospect of low employability, it is important that sufficient welfare is available to support people beyond the initial twenty-six weeks of statutory provision which is available in most US states. If the employment capacity of a nation is diminished the withdrawal of unemployment benefits is no longer justifiable as a deterrent for joblessness.

Economists warn against low spending with reference to the debt-deflation cycle which purportedly arises when consumers wait for prices to fall further before making purchases.⁶³ However, in this situation prices are prevented from falling too low because with less demand supply will eventually fall as companies down-scale, go out of business or sell abroad. In this way the downward pressures on prices resulting from competition is self-limiting. Should interest rates be set too low as a response to low demand and the possibility of deflation, companies will be more inclined to invest in capital-intensive technologies which will replace the need for workers and increase unemployment. Full unemployment would then necessitate a greater level of material throughput. However, it is likely that in a recession smaller businesses would suffer disproportionately; therefore as part of austerity measures, enough support should be given to small businesses so that they can survive whilst larger businesses are still encouraged to reduce the scale of their operations in the event of a recession.

To a company deciding on whether to invest, the price of labour and interest rates may be worth more as indicators of future demand than in and of themselves. If wages and interest rates are low, a company is less likely to invest in staff and materials even though the low wages and interest rates may just be a reaction to the lack of confidence of other investors. This phenomenon is known as ‘infinite regress’ and helps explain why many economists advocate stimulating an economy in recession by fabricating demand even though the recession is likely to have been caused by governments, businesses and consumers spending beyond the collective means of the economy they constitute. In democratic states short-term economic stimulus provides evidence of measurable success with which the electorate can judge governments during their likely term of office. However, debts based on borrowing to provide such stimulus cannot be forever passed on—either to a future generation, or to another party in the present in the form of a collateralised debt obligation (CDO). A reduction in demand and some protection against foreign goods is vital to the trade balances of Western nations whose ability to finance interest payments on its debt will diminish in the event of financial sector decline.

The Financial Industry

The actions of the finance industry have global implications but national governments and international organisations are limited to counteracting its ill effects, while excusing greed as the precursor of innovation. In 1999 the Glass-Steagall Act, which had separated commercial banks from investment banks, was repealed, and in April 2004 the Securities and Exchange Commission allowed some investment banks to increase their debt-to-capital ratio from 12:1 to 30:1.⁶⁴ Throughout the 2008 crash not only were regulation and oversight insufficient but they were positively manipulated; the credit rating agencies which buyers and official regulating authorities relied upon to determine the risk of purchasing a financial instrument were bribed by the banks to extend triple-A status to CDOs.⁶⁵ As newly-created private money was hidden in portfolios around the world it would seem there would be fewer and fewer opportunities to exact leverage at the expense of another party, because as those seeking to apply leverage increased in number the true risks attached were more likely to become known. However, at the same time as the secret that private money was a fabrication became more and more difficult to conceal, financial instruments became more and more entrenched in the world economy; half of the toxic mortgages created in the USA were exported.⁶⁶ The triple-A rating of CDOs meant that banks could buy CDOs with clients' deposits and use them as collateral for loans from the central bank whose rate of interest was 1% lower than the rate of return on CDOs upon maturation.⁶⁷ Even if the triple-A assurance didn't convince the buyer of the safety of the CDO, there were various forms of insurance including a device known as a credit default swap (CDS) which required the seller to pay the par value of the reference bond to the buyer of the CDS should the bond default, while the creditor of the reference loan was required to make quarterly payments to the seller of the CDS until the maturation of the CDO. The increase in mergers and acquisitions in the USA in the 1990s likewise reveals an absence of macroeconomic oversight. Whereas the EU Commission has since 1989 had the power to curtail cartels in the interests of productivity, the large capital inflows coming from abroad to America resulted in mergers and acquisition. These were subject to a series of sharp devaluations just before the crash of 2008, and although the Dodd Frank financial sector reform bill of 2010 was introduced to address the financial crisis, further merging activity has been encouraged.^{68 69}

Increases to the price of land and rents increase the price of assets but do not result in the increased supply of goods and services; in this way the generation of wealth is limited to that which is enjoyed by seekers of rent. The definition of rent should include the returns of those with monopoly power, such as companies who have exclusive rights to import a certain good or extract natural resources, and companies who take credit/debit-card fees and merchant fees. While governments who encourage population growth may be lauded for increasing measurable wealth, increases to national income are likely to be confined to a large degree to seekers of rent.

Although wealth is undoubtedly being commandeered unjustly by being concentrated among fewer and fewer people, the wealth is less likely to be spent because generally wealthy people spend less of their income. World aggregate demand has fallen by one-quarter since 2008 and rent-seeking has been instrumental in this trend.⁷⁰ From an environmental perspective rent-seeking therefore serves as a linchpin by making reductions to demand

politically acceptable in the short-term. However it would be far preferable if the same reductions in demand could be achieved more equitably. At present the unfairness of rent-seeking is compounded by the tax savings it attracts: in the USA and the UK, dividends are taxed below the rate of income tax and in 2003 the Jobs and Growth Tax Relief Reconciliation Act lowered capital gains tax in the USA even as rent-seeking increased.⁷¹ Also, in the USA when capital gains are passed on after death, the inheritor pays tax only on the appreciation in value from the time that the capital was inherited.⁷² However, although rent-seeking has increased through the establishment of communication networks and trade relationships which expedite the consolidation of advantage and privileges, in some places governments have successfully intervened to reduce the impacts of inequality. Since 2003, in France, Spain and Japan the income of the highest-earning 10% has decreased while the income of the lowest-earning 10% has increased.⁷³ In the USA though, the top marginal income tax rate has fallen from a peak of 94% during World War II, to 70% in the 1960s and 1970s to 39.6% today, and today the highest tax rate only takes effect after \$413,201 of earnings or \$464,851 for a couple.^{74 75}

China

As some poorer countries to improve their manufacturing processes and the manufacturing capacity of richer countries becomes neglected, the dependence of richer countries on manufactured and agricultural goods will diminish their purchasing power, making less wealthy countries more inclined to hearken to the demands of their own citizens. As less wealthy countries thus develop self-sufficiency, richer countries must also restore a greater degree of industrial and agricultural autonomy, particularly as the means of transporting and producing commodities may be compromised by declining supplies of fuel. If industrialised countries were to acknowledge that a limit on affluence, sectoral shift and the sovereignty of economic growth may be beneficial, societies emulating the model of progress technologically advanced countries have abided by would be encouraged to implement a more accommodating plan for the future. At present technologically advanced societies are dedicated to preserving habits of consumption which not only divert resources from those in genuine need but actively facilitate lifestyle choices which are deleterious to the well-being of their own subjects (see Chapter I and Chapter V: The Role of Genetics).

While the world's population has grown by a factor of four in the last century, the consumption of resources has increased further still, even though over the course of the last thirty years technology has improved so that 30% fewer resources are required to produce each unit of GDP.⁷⁶ In China energy intensity has halved over the last thirty years, but because this has been accompanied by a fourfold increase in GDP in the same period, the result is a doubling of energy consumption.⁷⁷ Moreover in 2002, China's declining energy intensity trend reversed.⁷⁸ But before dismissing China's case for economic growth, it is important to consider that since 1979, in accordance with China's industrialisation, 200 million people have been brought out of poverty. Also, while China accounted for 23.4% of global energy-related CO₂ emissions in 2014, their per capita emissions are half those of Japan and EU and four times less than those of the USA.⁷⁹ Furthermore, they are an active

participant of the clean development mechanism (see Chapter VIII: The Case for Renewable Energy), and China has already imposed taxes on cars, gasoline and wood products.⁸⁰ However, despite the fact that China is the world's largest economy and the world's greatest producer of carbon emissions, it did not sign the Kyoto Protocol; therefore as long as China remains an associate member of the G77 it is difficult to expect member states with less thriving economies to commit to emission reduction targets. As China becomes more and more wealthy, the other countries in the global South which are set to lose most from climate change are bound to question the exemptions and concessions China enjoys. For this reason it is in China's interests to abide by international norms regarding climate change, especially because Brazil and Mexico have ratified their association to the Copenhagen accord with substantial voluntary commitments targets against business as usual emissions.⁸¹

In the course of ten years China has gone from being a country with no turbine manufacturing capacity to having its own companies capable of manufacturing complete wind turbine systems with most components produced locally, and having the second largest wind market in the world after the USA.⁸² With greater access to intellectual property, perhaps as a reward for definite commitments to emission reductions, China could perhaps replicate this success in other fields of renewable energy. It is important that this happens soon enough for the renewables industry to share in China's investment drive while it lasts, because at present China's levels of pollution are unsustainable. At present China relies on coal for 75% of its primary energy consumption and in 2006 80% of its fleets were classed as subcritical, with the average efficiency of all its coal plants being 32%.⁸³ Also, air pollution in Chinese cities is very high: in 1999, the average concentration of PM-10 particles in population centres over 100,000 in China was 89 micrograms per cubic meter compared to 25 in the USA and 19 in London.⁸⁴ It is not only that the demand created by an annual economic growth rate which since 1991 has been between 6 and 11% is unsustainable; the increased level of demand is making it impossible for China to accurately measure emissions.⁸⁵ Also, with China growing so quickly it has been impossible for infrastructure to keep pace and for suitable communication networks to be established; therefore the range of environmental laws implemented by central government has been constrained by a lack of resources. Furthermore, local officials have instructions to meet growth targets because the Communist Party leadership 'considers rapid economic growth a political imperative because it is the only way to prevent massive unemployment and labor unrest'.^{86 87} Lewis and Gallagher suggest that one way China could help to purvey economic reforms would be to encourage the formation of non-governmental organisations (NGOs)—at present NGOs are only allowed for the purposes of public education.⁸⁸

It is likely that the Communist Party in China will advocate a move to service economies in the near-future to increase Chinese income. Although this will involve China's manufacturing capacity being downgraded; with increasing incomes there will come increasing demand so although manufactured goods are likely to be outsourced, and domestic emissions are likely to decline; aggregate production is likely to increase, and the total emissions China is responsible for are likely to increase.

As the capacity for Western demand for the produce of emerging economies reduces, and the Chinese public demands its due, there is the risk that the vital space required for a fair level of Chinese subsistence will encroach upon the vital space of other nations unless China,

having followed the pre-1971 USA model in recent years to become the world's main exporter, also heeds the events of 2008 and attenuates its expectations of economic growth. For the USA to correspondingly present its recent past as a cautionary tale would require the USA accepting that its prominence has faltered since the events of 2008. Although China's domestic demand and levels of consumer debt are much lower than America's even when it was running a surplus, China's economy threatens to be much larger relative to the rest of the world than the USA's ever was. This limits the amount of demand available to keep its economy running, as does the events of 2008 which led to a reduction of global demand by one-quarter.⁸⁹ In addition there is the prospect of growing populations, depleting natural resources and climate change.

In the future China's need to create a market for its manufactured produce and the need to meet its domestic demand for food might be addressed by undercutting manufacturing industries abroad and buying land there to produce food. This is happening already, albeit to a limited extent.⁹⁰ Furthermore, China has recently built artificial islands in the South China Sea on which it is alleged military equipment has been installed to reinforce China's claim to the waters which are also claimed by Vietnam, Malaysia and the Philippines.⁹¹ Australia is concerned that the territory could be used to restrict air space or challenge maritime freedom of movement, thereby disrupting Australian trade.⁹²

Although the trend in China is towards continued investment, and in 1990 to 2011 the ratio of investment to private consumption almost tripled, China will be extremely reluctant to forsake the potential energy of its domestic demand.⁹³ Aside from a one-off devaluation in 2014, the yuan has risen steadily against the dollar from 12.1 cents in 2005 to 16.4 cents in 2015, and as the Chinese currency strengthens and China saves less it will be increasingly disinclined to finance US debt.^{94 95} China currently 'owns' about 8% of the USA's public debt so for the USA to be in a position to influence Chinese policy, it is important for the US government to buy back bonds sold to China. China's economy is now stronger than America's in GDP terms and, as of 2014, in terms of purchasing power parity as well.^{96 97} One danger of this is that in the absence of a feasible strategy for de-growth and with the continued presence of international competition, the West will feel pressured into asserting dominance militarily, if military capacity is the main field in which Western nations remain world-class. This isn't to say that China is working hard to assert its military dominance as well. A report released in April 2015 predicted that 'in the next decade, China will complete its transition from a coastal navy to a navy capable of multiple missions around the world', and confirms that China's newest destroyers 'have been fitted with a new kind of vertically launched supersonic anti-ship cruise missile, called the YJ-18, which could significantly enhance their capacity to threaten U.S ships'.⁹⁸

Intense diplomacy must take place between the West and China as well as other emerging economies, especially India and those countries in Southeast Asia whose recent economic growth has been spectacular. Those developed countries who advocate more environmentally-friendly industries must not only provide diplomatic capital by implementing a level of environmental protection they would wish to see implemented across the world, but more in addition to atone for the fact that the economic development which has allowed them to develop environmentally-friendly technology in the first place owes to polluting technologies, and further still because the sacrifice required of developing countries

may be most of the future economic growth which would otherwise be expected. This sacrifice may be necessary for survival-level subsistence to be maintained for the whole of the world's population.

Because many nations with emerging economies have adopted the principle of inviolable sovereignty, the relationships which connect these nations are largely based on trade rather than politics. Many of these nations are diplomatically inexperienced; therefore the West has the opportunity to transfer its sphere of influence from financial and security operations to diplomacy, to advocate the reversal of political nationalism and economic internationalism.

Proposals

Much prosperity in the West has resulted from Western cultural exports and for the US and UK specifically, the status of the English language as the primary language of international communication. However, while linguistic and cultural influence has conferred substantial political and economic advantages to Western nations in the form of cultural exports and the inflow of economic migrants, the integrity of Western language and culture is now vulnerable to the same threats the old world itself posed in the past as the new identities old world nations extemporise to embrace multifarious cultural experience succeed the identity from which the cultural exports originally derived their value. This phenomenon of cultural erosion contributes to the old world's reliance on devising increasingly elaborate and abstract financial instruments, manipulating currency exchange mechanisms and developing patents for new technology—for which demand must be fabricated and new commodity markets created. Stoking demand in this way of course entails considerable externalities.

It is worth noting that some of the economic growth the West is committed to has arisen because creditor nations with sovereign wealth funds which invest globally in real and financial assets have an interest in maximising the value of their own assets by promoting the value of debtor nations' currencies as well as their financial services sectors. This reinforcement of the vicious cycle of growth and debt by foreign interests is a problem especially for the USA whose currency is artificially supported as the currency of oil transactions. However, as Western nations resort to quantitative easing to address their debt problems, foreign investors will see the value of their investments fall in real terms. Western markets will then become less attractive to investors and doubts over the validity of the dollar as the currency of oil and the reserve currency of choice are likely to grow.

The creation of money by national banks for indebted governments would help to exonerate indebted governments and happily for poorer countries, as discussed earlier in the chapter, reduce the importing power of nations thus indebted. And while the resulting devaluation of currency may disadvantage wealthier nations in terms of their importing capacity, with the newly available tax revenues trade balance could be maintained by developing a stronger manufacturing base whilst imposing foreign trade tariffs. It is proposed that quantitative easing should be applied to relieve sovereign debt but not to address budget shortfalls. Quantitative easing could also be resorted to to facilitate some debt relief for households and for corporations who should however be subject to stringent carbon levies in

return. Any debt relief for the financial sector should similarly be accompanied by strict limits on speculative activity; however with some access to funds generated from quantitative easing, market expertise which largely resides among bankers could be appropriated to initiate a transition to a reformed financial system. Because of the intricacy of international markets, substantial regulation for the financial sector would need to be applied by an inter-governmental organisation, which should stipulate that banks' investment activity be restricted to providing investment capital for sustainable infrastructure projects.

In some cases money which has been borrowed on behalf of the public will not have been borrowed with the public's knowledge or spent in their best interests. However, as it is impossible to make individual politicians accountable for national debt, the burden of national debt must devolve to the beneficiaries. In the case of the UK, repayment obligations should devolve in part to those who profited and continue to profit from the activities of the financial sector which the government has supported, and in part to the general population who were the beneficiaries of the dramatic increases to public spending in the first decade of this century (see Chapter III: The Welfare State). A policy of fair reductions to public spending, general tax increases and a more progressive taxation scale is a necessary compromise, especially as the more debt repayments are made by means of quantitative easing the more the repayment is devalued, which leads to discontent among debtors. In some cases it may be necessary to campaign for the suspension of interest payments while emergency budgetary measures are introduced.

The inflation resulting from currency devaluation subsequent to quantitative easing would reduce importing activity and so the increase in circulated money would ultimately stimulate investment in domestic enterprise, while the introduction of carbon levies would also encourage domestic spending in favour of sustainable infrastructure. While infrastructure spending would initially be facilitated both by the economic stimulus of quantitative easing and resultant debt relief, governments would eventually, having gradually and discretely reduced public spending and provided insurance against inevitable fossil fuel price increases, be able to continue infrastructure spending by achieving successive budget surpluses. The agenda of localisation would proceed naturally from the reduced dependency on foreign markets and could be encouraged further in order to compensate for the deprivation of economic autonomy felt as a result of reductions to entrepreneurial activity.

Because even the scarcely sustained use of natural resources would result in sustained depletion and scarcity crises, austerity, albeit of an equitable type, must continue in association a zero-growth approach. This is necessary in order to establish a sustainable infrastructure, pay national debts and invest in labour productivity gains—which could however constitute working practice reforms rather than advancements to technology, necessarily. Standard working hours could be reduced incrementally in line with tax cuts following the completion of the foregoing objectives. If in due course it proves necessary to increase productivity, labour inputs could be recouped on an ad hoc basis by facilitating the restoration of working hours and by establishing a national service equivalent, if necessary, although this needn't necessarily entail the full-time commitment of a narrowly-defined demographic group. Any austerity schedule should account for the fact that the initial cost of establishing a sustainability paradigm is likely to negate or substantially offset environmental savings from fossil fuel abstinence for a considerable amount of time.

Proponents of service industry expansion argue that, by virtue of its non-material dimensions, the prevalence of services makes consumption habits resulting from their growth less material and therefore more sustainable. To an extent this is true. GDP growth of which an increasing amount derives from abstract services will be less resource-dependent than that which derives purely from manufacturing or agricultural activity. However, even where much new economic growth results from service industry expansion, there will only be relative decoupling between growth and economic output. Inevitably, a large part of increases in income subsequent to the growth of the service sector will be spent on goods and services which require land in order to be produced. The trophic theory of money is a useful model to illustrate the hidden environmental cost of the service industry.⁹⁹

Economic contraction would be assisted by material substitution, repair and re-use initiatives and larger scale recycling provisions, and a carbon tax would give sustainable infrastructure an advantage while not prohibiting existing infrastructure from adapting and investing experience and expertise in the sustainability project. In the future trade restrictions resulting from higher fuel costs will reduce the availability of foreign produce and where there is a greater focus on domestic markets, currency exchange mechanisms and the measurement of GDP will be less important. At present there is a lack of willingness to reconcile consumption and production to genuine needs because national interests are perceived to lie in growing the economy at a faster rate than other countries, but if enough countries decide to adopt greater self-sufficiency and erect tariffs simultaneously, GDP would become redundant as an index of prosperity. In this situation the observation that the contribution of community-based enterprises to GDP is dismal would become redundant, as in the context of a self-sufficient economy the added value given to 'exportability' would not be applicable.

Chapter XI: Religious, Cultural and Diplomatic Challenges

Gender Roles

While the moderation of gender roles does help guard against the excesses each gender is prone to, the loss of cultural distinction between characteristics which are traditionally recognised as masculine or feminine can frustrate biological impulses that should neither be wholly repressed nor despatched to expedited natural selection both because such selection is usually cruel and the subversion of traditional gender roles owes as much to politicised obfuscation as to any genuine requirements for their subversion.

With higher population densities the remit for masculine expression is reduced and as domestic machinery surpasses the efficiency of their human predecessors, the execution of domestic functions increasingly becomes the preserve of modern conveniences. The conformity of men and women to extemporised assignations is understood to secure gender equality, but this is not always the case. For instance, although acceptance of serial monogamy is upheld as a triumph of liberal humanism to societies whose more traditional practices are attributed to patriarchal oppression, the exclusivity of sexual relations in cultures where matrimony does not also entail polygamy represents a fundamental respect for the submission pledged by women to their partners. Where the experience of submission is not honoured by an equivalent degree of commitment, it is likely in a sexually permissive culture that the sense of violation will be repressed and as well as causing suffering for the woman directly concerned, will cause suffering for mankind in general as the violation is attributed to mankind in its universal aspect. Victims may seek restitution by promoting doctrines of female supremacy or by emulating masculine characteristics, ostensibly to champion feminism but perhaps in reality to disavow femininity: to make light of the loss which could however be restored in sooth with greater recognition that casual sexual relations often constitute deception. It is of course necessary to also recognise the full spectrum of intimacy requirements: to recognise that violation will not be felt equally in all cases.

As with differences in IQ (see Chapter II: Schools), the denial of gender difference is often concurrent with a secret belief that qualitative disparities do exist but must be censored because of the awkwardness of admitting them. Respect for female intuition helps to preserve women from the prevailing type of chauvinism which accords respect only to women who demonstrate masculine characteristics. Women's lack of success within the contemporary economic paradigm is often attributed to conscious sabotage but it is the economic paradigm itself which is patriarchal rather than the specific experience of marginalisation, necessarily. In the past a patriarchal economic paradigm was appropriate because the importance of the domestic realm in society justified the division of labour between men and women. However, in societies where the latter takes less precedence as in most of the developed world at the present time, it is right that patriarchy in the world of work is attenuated to some degree.

Religious Principles

For poverty and hardship to be proof against the existence of a benevolent God there must be a consensus that poverty and hardship are absolute evils, but for many a materialistic conception of the world is not a satisfactory representation of human experience. While it may be difficult in these particular times for us to envision what consolation may be available to those who appear to be undergoing great suffering, this difficulty is not proof in itself against the existence of such consolation. With consciousness of one's frailty comes a loss of faith in human agency so one beset by physical suffering will be more amenable to comfort which is not readily apparent to one whose reason is more materially orientated. Many religious people undertake suffering voluntarily and seek this in good faith on behalf of those in their care, that they too might also attain a greater understanding of the spiritual life. If a healthy degree of humility can be attained by moderate self-denial the person is better prepared for hardship. Perhaps finding evidence for this phenomenon may be difficult, but for parents all across the world it is a truism: adequate preparation for suffering makes people less liable to experience misfortune as an act of violence and to many religious people suffering is understood as providence executed in the interest of the person's soul. Certainly if self-denial is necessary for true contentment, the imposition of misfortune can be understood as a way of advancing the soul, not as a punishment. Where the misfortune is fatal, redemption may be desired in the form of relief should peace have been desperately sought, or in rendering the sufferer the conduit of a cautionary tale should the life have been led in such a way that the soul's trappings can only be divested with great humility. With this humility, however, comes the honour due to one who helps others in the end. The trials and tribulations which govern the life of a single human being can be likened to the process of evolution by which a whole species' advancement is determined. It is through adversity that a species advances and for the individual many cherished aspirations may be quashed only to be surpassed by opportunities in their stead, if faith can preside.

With the exception of organisms which reproduce asexually, all functional things live for recreation and procreation—to thrive in this life and the next—in varying measures. However, on occasions in human history concern for the afterlife has been too culturally prevalent, as in the case of medieval Europe when people who did not perhaps have the requisite characteristics followed the precepts of a spiritual life. By setting the rewards of their toil beyond their progeny, the legacy of the benefactor may have found no reception and their gift may have been forever in transmission. If one human faculty is exalted to the complete exclusion of its essential counterpart, or if the existence of the counterpart is denied, it will be crude in its remonstrance—exercising itself with unwonted autonomy where it is naturally weak and with excessive force where it is naturally strong. In this way the soul may be compromised just as surely as where viciousness is deliberate. In the past it was believed that absolution could be achieved by the offerings of appointed individuals. Today this element of organised religion is criticised because it results in the aggrieved party being denuded of direct recompense and the offending party being prevented from making genuine amends and undergoing reformation. While this is a fair criticism, the same deferral of responsibility from the individual is apparent in our society today. Consider how individuals are encouraged to 'work hard and get on' irrespective either of the manner of work undertaken or the direction in which the work will ultimately take society.

Islam

In economically developed countries, Islam has preserved a greater degree of orthodoxy than other major religions; therefore in societies with a relatively liberal and materialistic outlook, certain forms of renunciation practiced by Muslims may be met with scorn or ridicule. Rituals of a mysterious nature may be understood by non-participants as the conduit of discipline which is seemingly unsubstantiated and therefore worthy of suspicion; even where such rituals do instil doubt as to the validity of atheistic or more mild religious doctrine, the ascetic privations of Islamic faith may be felt to be intimidating. Indeed, the investiture of effort in observing articles of Islamic faith such as the fasts of Ramadan may result in non-compliance being equated to decadence, cowardice or ignorance. Therefore in Muslim communities there should be awareness of other paths to righteousness: it should be recognised that morality or spirituality can be obtained existentially in the absence of religious doctrine. At the same time, in non-Muslim communities it should be recognised that for lifelong religious adherents of Islam, nihilism might be the outcome of renouncing faith, and while modern services and their associated political systems are rendered proximate by corporate media and perhaps diplomatic canvassing, the successful appropriation of foreign values is likely to remain elusive, remote as foreign values are likely to be, in essence, from the conditions they are imposed upon.

In recent years feminist reformists have challenged traditional Islamic gender roles by arguing that with each departure from the conditions of the seventh century a literal translation of the Quran becomes more and more difficult. For this reason feminist reformists seek to decouple the spiritual essence of the text from the society the text originally engaged with. Given that the Quran was written at a time when female infanticide was customary, it can be viewed as being a force for female emancipation. Therefore it is possible that had it not been an unrealistic aspiration for society at the time the Quran was written, *hadiths* more congruous with customs extant today in much of the world might have been practiced. Even using Muhammed's own beliefs as guidance, there are indications that Muhammed might have advocated women wielding more religious influence than is customary in many Islamic societies: Muhammed's favourite wife 'Aisha was the source of many *hadiths*, and Muhammed is supposed to have told his followers that they 'received half of their wisdom from a woman'.¹ However some of the anti-feminist *hadiths* have been ascribed to Abu Huraira, who was also a companion of Muhammed.

Malak Hifni Nassef claims that 'if polygamy is totally prohibited men who cannot remain satisfied with only one wife will look outside the bounds of matrimonial life and create sexual anarchy and corruption'.² Considering the condition of man from an evolutionary perspective, this statement has some validity. Men's proximate desires are configured by the ultimate need to increase the chances of passing on their likeness to the next generation, while women's ultimate need to be provided for whilst bringing up a child is not neglected in a polygamous relationship which has material guarantees. However, although the desire of the woman to be involved a monogamous relationship is—from an evolutionary perspective—merely a proxy for her biological purpose, the woman is nonetheless inclined to feel the proximate need as being real and may be dissatisfied with a husband who can only dedicate a fraction of his affection to her. Many men in positions of

leadership have strong physical desires, but polygyny represents the capitulation to desires which leaders with religious authority should advocate the sublimation of. In describing the benefits of hunger, one work cites 'the purification of the heart, the illumination of the natural disposition and the sharpening of one's insight'.³ As a form of hunger, unsatisfied sexual desire can open or keep open a discourse with God, chastens one's expectations and ultimately allow the individual to experience contentment with a single partner. It may be that the man is more loved than anyone else by more than one woman but still the woman's feelings are likely to be complicated by the man's matrimonial affection being diverted to other women. Furthermore, there are women too for whom there is more than one man who finds them singularly interesting, but clearly the satisfaction of each man's desire in this case would be considered distasteful. Although a single partner may perhaps only satisfy the more dominant male or female a part of rather than all the time, even if their partner is as attractive as them, and although the partner may not be the guarantor of the greatest sexual ecstasy; as in the case of wholesome food the value is greatest and the satisfaction most appreciable when gratification succeeds pangs of hunger, pangs which follow just as surely after insubstantial intercourse as after insubstantial victuals. Furthermore what sexual desire is not satisfied can to a large degree be sublimated: rendered as service to God, Allah or the Universe.

As well as potentially being abhorrent to the soul of the polygynist, polygyny creates distortions in society which actually contravene the principle in Sharia law that a man's right to sexual satisfaction is divinely mandated. The practice of polygyny engenders a scarcity of available women; therefore men without wives are either left without their divine mandate or are, as is sanctioned among the Twelver Shi'a, tempted to enter a temporary marriage contract which has no lower temporal limit.⁴ Therefore in order that marriage is possible both for the polygynist and for the individual who, by the practice of the polygynist, is lost to the woman who may otherwise have become his soulmate, there is a need among Muslims to somehow make more women available for marriage. According to this need there has arisen the law that Muslim men are permitted to marry Christian or Jewish women but Muslim women are not permitted to marry Christian or Jewish men. The law is justified on the basis that a Muslim man is duty-bound to respect the religious rights of their spouse or spouses, should they be 'people of the book' while the Christian or Jewish man is supposed to be under no such obligation, should they marry a Muslim woman. This reasoning is spurious because although historically, unlike polytheists, 'people of the book' were spared the death penalty upon resisting conversion to Islam, they were still taxed for their supposed infidelity. This precedent suggests that in many cases Judaism and Christianity are considered inferior faiths and that a Muslim has a duty to attempt to convert non-Muslims. Furthermore, the fact that in societies where Shi'a is the dominant caste Shi'a men may marry Sunni women but Sunni men may not marry Shi'a women also suggests that the Muslim policy of intermarriage with Jews and Christian carries the assumption of Muslim supremacy. In present-day Western societies the Islamic imperative to spread the word of Allah and the need to make more women available for marriage with Muslim men are acting in accord to create demographic imbalances.

Each of the five roots of Sharia law are applied according to the degree of departure from the Quran which is necessary to engage with the issue in question. While the five roots

represent the devolution of authority to agencies more and more remote from the text, each successive legal agency ultimately takes authority from the primary source, the word of Muhammed, although in the case of *Qiyās* and *Itjidad* the authority is exercised more discretely. In Islam the primary source of law is the Quran, and the next nearest authority is the *Sunna* or *Hadith* which is a record of the traditions arising in accordance with Muhammed's words, practices and silent approvals. Wherever *hadiths* are contradictory, Muslims discriminate between these by forming an *Ijma'* or consensus which should be accepted as lawful. The legitimacy of '*Ijma*' comes from a *hadith* of Muhammed, who said that 'my Community shall not agree upon misguidance. Therefore, you must stay with the congregation, and Allah's hand is over the congregation'.⁵ The next root of law is the *Qiyās*. As with *Ijma'*, the inculcation of the Quran by Muhammed's adherents is presumed to be proof against error and *Qiyās* is vindicated by Muhammed who himself suggested that where no solution to a problem can be found in the word of God or the *Sunna*, the Messenger of God should refer to his own opinion.⁶ *Itjihad* is the final root of Islamic law and requires independent reasoning undertaken with effort. It represents the intellectual struggle undertaken by erudite individuals to understand a law as revealed by Muhammed.

In Shi'a jurisprudence the religious order is formally structured: after undertaking formal training in theological studies, a student can become a *mujtahid* and receive written authority to interpret the law. From among the ranks of *mujtahids* a few attain the rank of *ayatollah* and a limited number of these are eventually recognised as Grand Ayatollahs. In the Shi'a tradition, the religious establishment is more integrated into society and Muslim scholars, '*ulama*', are made recipients of religious taxes, giving religious practitioners in Shi'a nations more independence.⁷ Twelver Shi'a is the largest branch of Shi'a Islam and is characterised by a belief that Shi'a religious authorities are considered deputies of the *Twelfth Imam* or *Hidden Imam* who will be reincarnated as the messiah.

Even though the Shi'a tradition would seem to be conducive to uniformity, the process of appointment can produce greatly different results. While in Iraq, the *fatwas* issued by the most senior *marja*, Grand Ayatollah Sistani, urged everyone to vote, and by his authority religious decrees were issued asking his *Shi'a* followers not to resist the overthrow of the Ba'ath regime, Grand Ayatollah Khameni has been against liberal reforms and his militaristic tendencies were demonstrated by the suppression, by the Basij militias under his command, of the protests which followed the disputed victory of Mahmoud Ahmadinejad, a conservative president who the Grand Ayatollah had lent his support to. The leading figure in the Iranian revolution in 1979 was Ali Shari'ati who forwarded the cause of Islam as a revolutionary ideology with recourse to the speculations of mystics.^{8 9 10} Under his support for an Islamic state from students and from conservative forces was brought together. His eclectic ideology united the people in the way that proponents of an Islamic state today in the Middle East have been unable to do.

Although in Sunni societies the independent interpretation of the Quran is restricted, differential hermeneutics had formerly been accepted in accordance with Sufism, a mystical social tradition which may have been influenced by Eastern Christians and Gnostics. In Sunni nations, the lack of a religious infrastructure and the decline of Sufism has meant that the implementation of religious principles devolves increasingly to smaller groups and individuals who, in order to approve a *hadith* or apply analogical reasoning to a modern

circumstance, have only to achieve the consensus of a small part of the population which may not be representative of the whole religious community. The traditional limitation in Sunni societies to *taqlid*—the imitation of a precedent applied by predecessors—as opposed to *ijtihad*, has meant that Islam in Sunni countries has not engaged with emerging modern issues. This failure, in combination with the limited ecumenical authority of *'ulama* in Sunni countries, means that there is more opportunity for individuals and small groups to obviate traditional religious authorities in exerting political pressure against foreign influences and modernisation in general. Wishing to compensate for the lack of engagement between the principles of Islam and the modern world, and wishing to attract the attention of international media, Islamist groups tend to be violent in their means, and in accordance with the crudity of their education they are not amenable to the criticism that they are compromising the integrity of their opposition by using the weapons and the propaganda methods of their enemy.

Arab Society

Between 1990 and 2008 the population of the Arab world increased by 44%.¹¹ Although the part of this population growth which is attributable to a sustained birth-rate represents abstention from the use of birth control in compliance with Sharia law, the reduction in the death-rate has been a consequence of Western interest in Arab oil which has provided the area with wealth as well as Western methods of improving healthcare and sanitation. As the support for a rapidly-increasing population can therefore be seen as a phenomenon related to Western intervention, it can be argued that the absence of birth control, though a Sharia principle, is fostering dependency on the West. Being implicated in creating the need for Western infrastructure in the first instance, religious principles can be criticised for then providing an impediment to the modernisation which is required to reform infrastructure and support the growing population. However, if feminist reforms which are part of the modernisation agenda succeed in increasing female participation in work, the increase in the number of people in employment in some households is likely to contribute to the experience of poverty elsewhere, as populations grow and less labour-intensive economies emerge.

In Iraq, dependence on Western markets is such that oil represents 98% of foreign exchange whilst only creating 1% of jobs.¹² Unemployment and especially youth unemployment is rife across the Middle East and so there is plentiful idle time for the large youth population to meditate rebellion. In recent years there have been revolts against the systems of government in the Middle East but there is also strong opposition to Western influences in the region which many, especially Islamists, consider to be corrupting. In the latter case popular preachers exploit the idle time and internet access of young people to preach explicitly political and anti-Western messages. However, in doing so they depend upon technology which originates in the West and leisure time which has been facilitated by the wealth which Western interest in Arab resources generates. Therefore the West is not only the object of the rebellion but also its facilitator. The same paradox is evident in Israel where the anti-establishment views of Haredi Jews are compromised by the fact that in many cases their study time is funded by the welfare state. However in the Arab world, the lack of youth participation is not deliberate: many young people have graduated from university but

have been able to redeem their qualification neither for vocational opportunity nor for political capital. In Egypt for instance where 75% of the population is under 25, and youth unemployment as of 2013 stands at 38.9%, the best opportunities for work are likely to be abroad, perhaps in Libya or Saudi Arabia—countries who by virtue of their oil production can afford to depend on outside labour.^{13 14}

From the 1880s until the revolution of 1952 there were no tariffs on cotton sold to Europe from Egypt and even though state-sponsored infrastructure encouraged self-sufficiency following the dismissal of colonial rule, still, as in much of Africa, domestic food production has been overlooked in favour of exporting luxury items to the West including citrus, dried dates, figs, apricots and olives. Accordingly with its population of about 89 million, and fast increasing, Egypt is the largest importer of wheat in the world.¹⁵ Water shortage is also a serious problem in the Middle East, and may be the cause of serious conflict in the future. One of Israel's objectives of the Six-Day War against Jordan was to prevent the diversion towards Jordan and away from Israel of the River Jordan headwaters on which Israel depended for 60% of its water.¹⁶

During Muammar Gaddafi's regime, 30% of the oil used by European capitals was coming from Libya.¹⁷ From 1953, prospecting permits were given to several petroleum companies who were required to pay a 12.5% royalty on their revenues and a 50% tax on their profits; even when a company was given a concession, it would have to relinquish one-quarter of its share after five years. With these policies, Libya could dismiss any failing prospector and prevent any single company from becoming too powerful.¹⁸ However, while raising revenues by exporting oil did reduce the burden on the taxpayer, the fact that the industry on which the country depended for its wealth was under the control of the government meant that the government lacked accountability to the populace. While in Libya under Gaddafi the typical working day of a citizen was between eight o'clock in the morning until one or two o'clock in the afternoon; before 2011, out of a population of about 6 million there were up to 2.5 million migrant workers, without whom it would have been very difficult for society to carry out its basic functions, especially during the war.^{19 20 21 22} For the native paucity of skills the director of the country's Curriculum and Educational Research Centre, Abdulnabi Aughania, blames the lack of provision for vocational training in the education system.²³ Clearly Libyan people were enabled to entertain aspirations which were not compatible with the country's long-term means. Aside from the over-liberalisation of the education system, the state also failed to prepare the Libyan youth for entering state employment, although a lack of readily-available labour in this case will help facilitate a reduction to the unnecessarily large state apparatus which had been established to satisfy patron-client relationships under the Gaddafi regime. Once the oil reserves Libya commands expire or are devalued by viable alternatives, the country will be left without the money to continue importing labour or basic produce unless there is education and infrastructure available to regenerate primary industries. While the disturbances which caused the flight of hundreds of thousands of workers since 2011 are regrettable, as a consequence of these Libya will be encouraged to take action sooner to become more self-sufficient.²⁴

Despite the fact that for a while at least shale gas may emerge as a viable fuel resource for much of the world and in doing so precipitate a sharp reduction in the price of oil, the price of oil has increased so much since 1998 when the inflation-adjusted cost was

about \$20 per barrel that were it not for the massive infrastructure investments and lifestyle adjustments since that time, a sharp reduction in the value of oil exports associated with the shale gas phenomenon, it being a reduction from a high base, might not pose such a threat to Saudi Arabia and other oil-producing states. But the breakeven price of oil in Saudi Arabia is now \$105/barrel.^{25 26} So as the price of oil falls and wealth leaves the Gulf, Gulf nations will be less able to exert influence in the Middle East via financial support to their favoured regimes. While this leverage, like the commensurate infrastructure developments, may be undesirable per se, international and domestic economies, respectively, have developed around this type of intervention so the decline of the Gulf states needs to be properly anticipated and managed so as to prevent domestic and international instability. It is possible that should the West withdraw investment from the Gulf too sharply, leverage could be exerted on the West by threatening Israel.

Conflict in the Middle East

Much of the conflict in the Middle East can be traced to the territorial disputes which arose following the disintegration of the Ottoman Empire. In return for assistance in World War I, promises were made through TE Lawrence for a national Arab homeland in the area of Greater Syria; McMahon in his correspondence with Hussein wrote that 'Great Britain is prepared to recognize and support the Arabs in all regions within the limits demanded by the Sharif of Mecca'.²⁷ However, once the French government became aware of the tenor of negotiations between Great Britain and the Sharif, France negotiated a secret agreement with Great Britain and Russia which delimited Ottoman territory into British and French spheres of influence.²⁸ Even if the UK had been unfamiliar with France's intentions when the negotiations with the Sharif took place, it was irresponsible of the UK to make promises which it couldn't be sure it would honour, and then to revoke them in secret. At the same time as promising land to the Arabs, the UK had pledged to provide a Jewish home within the British mandate for Palestine, in return for the assistance rendered by the Jewry during World War I. In the event, the state of Israel was created in 1948 when the British Mandate for Palestine expired and the General Assembly of the UN approved a partition plan according to which Palestine would be divided into an Arab state, a Jewish state and a UN-administered Jerusalem.²⁹

With the exception of Palestine, independence has now been granted to all the nations in the Middle East. However, following the demise of imperial rule, power has remained within certain family networks. Unlike in Jordan where there had been a monarchy since 1921, the leaders which emerged as revolutions overthrew imperial power in the region had little or no experience of governance. Wherever tribal societies prevail within Islamic nations, the rule of a territory by a small network of families in accordance with the principle of kinship solidarity emphasised in Sharia law is feasible because the leadership's *familiarity* with the people can be a greater guarantee of order than leadership qualities would be in its absence. However, when the territory which is being ruled is populated by millions of people, the failure of the ruling class to envision the needs of the people it governs is more problematic and force is likely to be used to maintain order, especially when the old order are

entirely dispensed with. This occurred recently when following the government's overthrow in Iraq, L. Paul Bremer's first Provisional Authority Order decreed that Ba'ath Party members must be 'removed from their positions and banned from future employment in the public sector'.³⁰ In this instance as with many other regimes, membership of the Ba'ath party may have been extremely hard to resist; moreover the expulsion of *all* members of the old ruling party from their employment makes the business of running the country extremely difficult if all the experience of governance resides with the old establishment.

A very different problem was experienced by the Muslim Brotherhood-linked FJP when they came to power following the Egyptian revolution of 2011. Following a narrow election victory, the Muslim Brotherhood were soon confronted with a client state whose practices proved impossible to reform in a short time even when pay rises of 80% were offered.³¹ Not anticipating the repercussions of the protest movement meeting with the immovable object of state bureaucracy, the people blamed the Muslim Brotherhood and in June 2013 22 million people signed a petition to abandon Egypt's democratic project and appeal to the army to instigate a coup.³² Few of the people who gathered in Tahrir Square were especially sympathetic to the Muslim Brotherhood, and as in Libya and Syria, protestors united in contempt for the old regime rather than in commendation of a specific alternative. Disorder is likely to prevail whenever it transpires that the failings of the old order cannot be easily imputed to those who have upheld it, and among the insurgents there may be neither the skill nor the discipline required to establish a new order. Even if ISIS are successful in securing territory with which to build a new infrastructure, because they have attempted to entice people whose values are reminiscent of the systems they despise in such ways as offering free housing and a steady salary; even if the skills for state-building are present among them, the state-building project they wish to embark upon would be compromised by the internecine strife which would be likely to ensue should they succeed in their aims.³³

ISIS have inspired horror among the general public since the practices they have engaged in have come to light, such as the torture of a Jordanian pilot who was by all accounts a devout Muslim.³⁴ ISIS militants also threatened to kill all the 60,000 Christians in Mosul who didn't convert to Islam, most of whom have now fled, and ISIS are alleged to have raped women taken as prisoners. Even the peaceable Grand Ayatollah al-Sistani who urged the Shi'a population not to resist the Ba'ath overthrow in Iraq has 'called on all Iraqis to fight the militants'.³⁵ ISIS, with its membership of 30,000 fearless fighters and resources amounting to an estimated \$2 billion, is proving to be a formidable enemy of the growing Western alliance which is committed to bombing ISIS targets in Iraq and Syria. The alliance has responded in particular to the slaughter of Western journalists and aid workers as well as the killing of over one-hundred civilians in the attacks on Paris in November 2015.³⁶ The threat posed by ISIS in Syria is augmented by the likelihood of them violating a peace deal which might otherwise be more or less unanimously observed, but also by the possibility of them securing territorial gains in the absence of opposition. Already the strength of ISIS in Syria is such that they remain despite US airstrikes having been waged since September 2014 and the efforts of the alliance of rebel groups led by the Nusra Front, an offshoot of al-Qaeda. Rebel groups in Syria have declared their opposition to ISIS both because of ISIS's brutal methods and because ISIS prioritise the instatement of their own brand of Islam over the deposition of President Assad.

Because Sunnis societies have no ecumenical infrastructure that allows for the Quran to be re-contextualised, a ‘social imaginary’ has developed as a response to the incursions of foreign powers and the departure of society from the conditions extant during and soon after the conception of the Quran. Sayyid Qutb, who was an inspiration to al-Qaeda, considered secular states *Jahili* societies—societies ignorant of divine guidance, and he endorsed *takfir*—the accusation of another Muslim of apostasy. For Sunnis such as Qutb, the only possibility for a society with any element of Islamic law is to create one in the model of the eighth century caliphates, and ISIS is reputed to be desirous of creating a dominion of which ‘even India would be a part’; with Gujarat having been specifically identified as part of ISIS’s design.³⁷

The Muslim Brotherhood have worked hard to resist Westernisation and were instrumental in the overthrow of the 1952 Egyptian revolution, but they grew pragmatic in order to survive in the Middle East under the rule of authoritarian governments and their security services. Following the challenges faced by the Muslim Brotherhood in reforming Egypt, and the criticism they attracted, the Muslim Brotherhood acted controversially to maintain power. Once in office in Egypt, Muslim Brotherhood MPs attempted to appeal to moderates and their religious base by purveying different messages to each group, all the while hoping that neither would notice.³⁸ In November 2012, Morsi issued a declaration stating that his decisions would be ‘final and unchallengeable by any individual or body until a new constitution has been ratified and a new parliament has been elected’, and defended the statement on the basis that it was necessary to protect the transition to a constitutional democracy.³⁹ Although with the public protest which ensued he rescinded most of the decree he did not agree to postpone the referendum, and insisted on the right to protect the constituent assembly—which had become increasingly Islamic—from dissolution by the Supreme Constitutional Court. Members of the assembly then hurriedly prepared a draft constitution which was approved by the panel and which Morsi sent for a referendum.⁴⁰ In the event, 63.8% of voters approved of the draft constitution, which, while it was criticised for failing to end military trials or protect religious freedom, does provide freedom of movement, communication and assembly as well as strong protection against torture and arbitrary detention.^{41 42}

Al-Qaeda has attempted to defend its violent methods by citing the West’s preference for confrontation over negotiation, with specific reference to occasions where the West has behaved dishonourably in order to protect their strategic advantage, as in the case of the Sykes-Picot agreement. This criticism perhaps applies to many of the countries playing out strategies in Syria: countries who fail to appreciate, perhaps because of their insulation from the realities of war, that the human cost of the war exceeds the loss of strategic advantage. Despite the fact that the USA has traditionally been closely allied to Qatar and Saudi Arabia, and despite both of these countries being against the Assad regime as the USA has been, they have deliberately sabotaged ceasefires negotiated by international monitors as if fearing a sub-optimal outcome more than the continuation of war. Also, while Hezbollah began by intervening in order to protect Shi’a communities and shrines in Syria, it has now aligned itself firmly with the Assad camp and so has contributed to international confrontation which is perpetuating the war.⁴³ In Israel too, due to their proximity to Europe and the USA in cultural terms, the physical barrier between themselves and Palestine, and their Iron Dome

missile defence system, the suffering of people across the border is out of sight and perhaps out of mind. The UN mandate in Libya ‘to take all necessary measures... to protect civilian and civilian populated areas’ was interpreted by the Western alliance in such a way as to justify assisting with regime-change there, a contingency Russia and China were unprepared for, and one which has resulted in further loss of trust.⁴⁴ Given the dominance of China and Russia it is of strategic importance to adopt a more conciliatory approach to negotiations with these countries.

Israel and Palestine

Just as how tribal conflicts were set aside by adherents of Muhammed in order to preserve Islam; in Israel, internal differences are not publicly avowed in order for the nation to be presented as a coherent entity. However, the danger of denying these differences and projecting internal conflicts with the so-called Ultra-Orthodox Haredi Jews onto the outside world might prove a greater threat to the integrity of Israel than some degree of federalisation. At present the Haredi Jews say things about Israel that the rest of the country least wants to hear, yet the Haredi Jews are, in accordance with their fidelity to the tenets of Judaism, supposed to be the legitimate heirs to the state of Israel. Criticism from the Ultra-Orthodox community is thus likely to provoke deep anxiety and, as by reproducing at a much faster rate than the rest of the population the Haredi community creates additional pressure on Israel to expand its borders, the ontological security of the larger part of the Israeli people is threatened in deed as well as in word. Although the Ultra-Orthodox Jews makes up only 12% of the population at present, it is predicted that by 2040 the figure will increase to 20%, and already 25-27% of six year-old boys in Israel are from Ultra-Orthodox families.^{45 46} Yet despite forming an increasingly large segment of the population, Haredi men both refuse to serve in the army and refuse to take paid work. The first Prime Minister of Israel, David Ben-Gurion, did make a provision for a number of Ultra-Orthodox Jews to be exempt from national service, but he had in mind just 400 people. In 2011 an estimated 37,000 ultra-Orthodox men were avoiding military service.⁴⁷ It should however be noted that with the poverty level among the Ultra-Orthodox population in Israel reckoned to be 66% as of 2013, if all Israelis lived as frugally as the Ultra-Orthodox population does, the territorial requirements of Israel would be much diminished.⁴⁸ In order to counteract the voice of the Haredi Jews who believe that the true state of Israel exists in the Kingdom of Heaven, many Israelis take the view in direct opposition to them, forgetting perhaps that the voice of the Ultra-Orthodox community is not always heard. Much of the rest of the world may perceive the views of Israelis as extreme at times, not realising that the views they adopt exist in the context of a discourse which is concealed. Some degree of federalisation within the state of Israel would give Haredi Jews the opportunity to showcase a society based on their values, the successes of which might be instructive to mainstream Israel while the failures might be instructive to the Haredi population themselves.

As well as the differences in faith within the Jewish population of Israeli society there are distinct ethnic differences which result in different outlooks. All the Jewish groups in Israel have common descent in the Middle East, but following the Diaspora distinct cultural

and ethnic groups were formed. Mizrahim Jews settled in the Middle East and North Africa following the Diaspora, while the Sephardim settled in Spain before being expelled by Catholic monarchs in the fifteenth century. Because many Sephardim Jews fled to North Africa and the Middle East there is more in common between these two groups than between either of them and Ashkenazi Jews who settled in Central Europe and descend from male migrant workers and mostly European women.⁴⁹ In Israel today, Ashkenazi men earn on average 33% more than the average salary while Arabs earn on average 33% less than the average salary.⁵⁰ Although the high earnings of Ashkenazi Jews can be attributed to the fact they traditionally perform well in work, a report by the IMF in 2012 found that ‘for every education attainment level, Arab workers earn much less than Jewish workers’.⁵¹ There is perhaps some degree of discrimination against Arabs in Israel, but the strong sense of Jewish identity in Israel must be considered in the context of Israel’s vulnerability following the independence of the the Middle Eastern colonies from the World War I allies, as well as the Jewish people’s victimisation during World War II, which was in part a consequence of their erstwhile support for the allied forces. Moreover, although Israel has been in receipt of considerable financial support from the West—since the creation of the state of Israel the USA has donated \$233.7bn to the country in inflated-adjusted terms—while the state of Israel serves as the proxy for Western interests in the Middle East, it incurs disfavour which might otherwise be meted to other nations.⁵²

The UK’s Palestine Royal Commission underestimated the differences in aspiration between the Jews who would settle in Palestine and the native Palestinians: they wrote that ‘Arab hostility... would presently be overcome, owing to the economic advantages which Jewish immigration was expected to bring to Palestine as a whole’.⁵³ One can sympathise with the horror of many Palestinians who have played no part in recent European history, yet must witness their borders receding with Israeli settlements, and have been forced to seek asylum in countries where they are treated as second-class citizens. While Jordan gives Palestinian refugees citizenship, Syria has not recognised them as citizens and Lebanon does not admit them at all. Although many Arab nations despise Israel, they themselves have failed to treat Palestinian refugees as well as their own native population or even to accommodate them at all. However it is important to note the important role played by Syria’s neighbours in accommodating people displaced by the Syrian War. As of December 2015, Turkey was hosting more than 1.9 million refugees, Lebanon more than 1.1 million, and Jordan about 630,000. Even Iraq, struggling to contain its own serious conflict, is currently home to about 250,000 refugees.⁵⁴

The Camp David Accords of 1978 and the peace deal of the next year required that the USA, Israel and Egypt give Palestinians full autonomy and that Israel withdraw its forces from Palestine. However, although Israel accepted the strategic advantage which came with the elimination of the threat formerly posed by Egypt, Israel did not follow through on its commitments to Palestine and in the ensuing years not only maintained the borders which were extended following the Six-Day War in 1967 but extended them.

Following their acceptance of the two-state solution in 1988, the USA issued a presidential waiver which permitted contact with Palestine.⁵⁵ However, Israel continued to build settlements in what was considered to be Palestinian territory and so eventually the Palestinian population became disheartened by the Palestinian Liberation Army (PLAs)

policy of appeasement. Meanwhile Hamas, an organisation which was established during the First Palestinian Intifada, was gaining support both within Palestine and in the wider Sunni community because it could prove that its militancy had secured results. The plight of a single Israeli soldier who had been captured by Hamas elicited so much sympathy that in return for his release the Israeli government pledged to release more than a thousand Palestinian prisoners.⁵⁶ In this way Hamas successfully manipulated news media's capacity for sensationalism: its capacity to promote an 'all for one' sentiment.

Although the Palestinian electorate admired Mahmoud Abbas' personal attributes and he was elected as president in January 2005, Hamas won the majority of seats in the legislative council.⁵⁷ For eighteen months power was shared between Abbas who was president of the Palestinian Authority and leader of the Fatah party, and Hamas's Ismail Haniyeh who was prime minister. Following armed conflict between fighters from Fatah and Hamas, Hamas occupied Gaza which led to Abbas dismissing the Hamas-led unity government. However Hamas retained control of Gaza leading to aid to Palestine being given directly to Abbas and Israel introducing a blockade in Gaza.⁵⁸ Although the blockade was officially for the purpose of preventing the appropriation of 'dual-use' items for military purposes, basic groceries were included on the list of banned items and in 2012 a document was published which revealed that Israel had calculated 'the point of intervention for prevention of malnutrition in the Gaza strip' in order to persuade the people living in Gaza to vote out Hamas without quite causing an international humanitarian crisis.⁵⁹ Hamas had begun as a militant-wing of the Palestinian branch of the Muslim Brotherhood but eventually subsumed the organisation and gained international recognition.⁶⁰ In accordance with their support for the Syrian rebellion Hamas has gained funding from Turkey and Qatar, and under the patronage of moderate influences, gained legitimacy as well as popularity. In 2012 the UN decided to upgrade Palestine from an observer entity to a non-member observer state following a shift in popular opinion concerning the Israel-Palestine crisis, but despite this, a permanent peace treaty continues to be elusive.⁶¹

Until the 2014 Gaza War it did seem as if there had been some progress towards peace between Israel and Palestine—in 2012 a ceasefire was agreed between Israel and Gaza, brokered by President Mohamed Morsi, but the new challenges Israel has faced in recent years has given them a renewed sense of insecurity.⁶² As well as the loss of some diplomacy with the White House and the loss of some popular support in Europe, there has been the threat of the nuclear programme in Iran, the election of the Muslim Brotherhood in neighbouring Egypt and an increase in support for Hamas. The rise of ultra-nationalists and right-wing parties such as the Jewish Home Party in Israel has resulted in Binyamin Netanyahu's Likud party dropping many of its liberals; Netanyahu himself, as representative of the centre-right, was heard to concur with a statement before the election in March 2015 that a Palestinian nation would never be formed while he was Prime Minister.⁶³ Settlement activity by Israel in the E1 area between Jerusalem and the existing settlement of Ma'aleh Adumim is threatening to cut off Jerusalem from the West Bank, and 'prevent the creation of a viable, contiguous Palestinian state', and between June 8th and July 27th 2014, Israel launched a ground offensive in Gaza during which more than 2,100 Palestinians were killed, most of whom were civilians.⁶⁴

Middle Eastern Security Services and the Syrian War

Similar to how the portrayal of a Jordanian air pilot's torture at the hands of ISIS contributed to the loss of popular support for the organisation, in Tunisia the popular revolt against dictatorships in the region was instigated by the story of a single event. While modern media can serve to deceive when specific events are given disproportionate emphasis, the plight of Mohamed Bouazizi spoke of the corruption which was truly abundant within the Tunisian state bureaucracy and security services, and resonated with so many people for this reason. For the first time, by means of social media, the frustration of people who had been oppressed by these state mechanisms could be expressed. At the time in Tunisia, street vendors were required to obtain a license but this could only be done by bribing officials; yet without selling produce in the first place it was impossible for many to raise the funds needed to offer the bribes. Mohamed Bouazizi was caught trading without a license and when he offered resistance to the officials who attempted to seize his equipment, he was beaten. As a consequence of this he publicly committed suicide. As well as the poverty experienced by men like Mohamed across the Middle East, unemployment is also culpable in preventing men from fulfilling their assigned role in society. Men like Mohamed struggle not only to find work but to leave home, get married and be respected in the community.

Although events in the Syrian crisis eventually took a very different turn to those following the Tunisian Revolution, they had a similar beginning. In the southern city of Daraa in March 2011, fifteen schoolchildren were arrested and tortured after writing that 'the government want to topple the regime' on the walls of a school. After protests at the arrest of the children, security forces opened fire, killing four people.⁶⁵ After the Ba'ath party came to power following a coup in 1963, Syria enjoyed a sustained period of stability which considering the sectarian divisions the part had inherited, was a significant achievement. Alawites were chosen by the French to populate the military in large numbers because they had suffered discrimination from Shi'a and Sunni Muslims and so could be manipulated to act on behalf of the French against the native population, if necessary.⁶⁶ Hafez al-Assad eventually came to power in 1970 having previously served in the air force and the Ba'ath party, and in accordance with his military background and the growing presence within the new government of a formerly-persecuted and suspicious minority sect, a regime was implemented which ruled by fear. However, unlike in Egypt and in Tunisia where the military preceded the government and would willingly subjugate government interests should they conflict with national interests, because the military had grown from the regime in Syria the military recognised no distinction between the interests of the regime and the interests of the nation.

In much of the rest of the Middle East it was the police which tyrannised over the population. In Tunisia, Ben Ali created an internal security service of between 130,000 and 200,000 men which inflicted, according to the UN Special Rapporteur, Juan Mendez, the 'notorious and endemic practice of torture' in order to protect the regime and overawe the army, which under Ben Ali, was reduced to just 35,000 men^{67 68 69}. During the Egyptian Revolution in January and February 2011 846 protestors were killed and although it is not clear how many civilians were killed by the police in self-defence, one of the principle reasons for the uprising was police abuse.⁷⁰ In Syria meanwhile, the internal security services,

acting in greater accord with the military and central governments, could orchestrate violence much more elaborately. The Assad regime propagated conspiracy theories which would appeal to the fears of Alawites and their collective memory of persecution before setting out to realise these fears by acting on behalf of imagined assailants. To gain support for increased security, the Assad regime covertly threatened Alawite villages in such a way that Alawites came to believe that pre-emptive action against a revolution was justified though the larger part of the threat was fabricated.⁷¹

Ultimately, rather than protecting the regime, the cynical strategies intended to pre-empt popular uprisings were eventually presented to the world as evidence of the need for reform in Syria. However, despite the viciousness of Assad's internal security services, the complete usurpation of his regime would expose similar sectarian lines to those which became apparent after the Iraq war but which were not appropriately recognised by US authorities.⁷² Although the resistance fighters want to see Assad deposed, should the present establishment be dismissed as the Ba'ath party was in Iraq following the occupation there, popular uprisings would be likely to continue because the requisite skills for governance may not exist in the new establishment. In this situation the case for proxy rule would become stronger. Regional powers are a strong influence in the conflict already and are likely to continue to be so if a new parliament cannot secure widespread support or is ill-equipped to rule autonomously. The most prominent alliance in Syria is the National Coalition for Syrian Revolutionary and Opposition Forces. However, although this group is backed by the West, it is rejected by many other groups.⁷³ In August 2015 the UN estimated that to date 250,000 people have died in the Syrian civil war and in addition to the four million Syrians who have fled the country, 7.6 million have been internally displaced.⁷⁴ In March 2015, the UN estimated that 30% of Syrians were now living in 'abject poverty'.⁷⁵

The Ukraine Crisis

Adherents of the monist tradition in Ukraine believe that Ukrainian ethnicity as represented by their version of the East Slavic language is incompatible with the Malorussian view of Ukraine as 'Lesser Rus', and although the common ancestry of Russians and Ukrainians can be traced to the federation of East Slavic tribes in Kievan Rus as recently as the ninth to thirteenth century, the Holodomor tragedy which many Ukrainians recognise as an act of genocide perpetrated by the Soviet regime, has distanced Russia from Ukrainian sympathies. Although the Holodomor tragedy was part of the Soviet famine of 1932-33, the Ukraine and Kuban areas were disproportionately affected and the lowest estimate is that 2.4 million ethnic Ukrainians perished of hunger.⁷⁶ While the policy of collectivisation can be attributed to the brutality and demagoguery of Stalin's USSR, its seemingly disproportionate impact on Ukraine has been attributed to racism. Many people living in the Ukraine today have parents or grandparents who died at this time and see Russia as the 'continuer state' of the USSR even though modern Russia is a distinct political entity from the USSR. It is therefore unsurprising that Russia is seen an inveterate enemy by many Ukrainians. Whereas a country like Switzerland, bordering large powers but maintaining peaceful relations with them, can easily assimilate the diverse influences of its neighbours; countries like Poland, Ukraine and

North Korea who have a history of violence with their neighbours, are more likely to retain strong elements of nationalism. However, historic grievances which give rise to Russophobia demarcate culpability and victimhood neatly between Russians and Ukrainians for crimes perpetuated by the Soviet regime. This is irrational because not only did many Russians die in the mass famines of Stalin's USSR, but there have been many Soviet General Secretaries of part-Ukrainian descent including Khrushchev, Brezhnev and Gorbachev. Also, Ukrainian nationalism poses a problem to the people living within its boundaries because the incorporation of Ukraine into the USSR, albeit as a union republic, left a great Russian legacy within its borders: one manifest by the language—according to a report by FOM-Ukraine, Russia is spoken as the language of communication by 52% of the population—and by its demography: in the 2001 census, 17.3% of Ukraine's population were counted as Russian, albeit most of these people live in the south and east areas of the country.^{77 78}

Previously businessmen would tend to favour moves to devolve power from central government because their spheres of influence were limited to specific regions; nevertheless eventually, as a small number of oligarchical clans gained nationwide coverage, their influence spread into central government. For those businessmen who looked towards Europe rather than Russia for investment and expansion, nationalist sentiments could be exploited because nationalism would more commonly identify Russia as a threat than Europe. While some oligarchs enjoyed secure trade relationships with Russia, many, upon seeing the demise of the oligarchy in Russia under Putin, favoured a Ukraine which was more integrated into the European bloc. After the fall of the USSR, much of its assets were seized by businessmen and a few clans were established in Ukraine, each typically controlling shares of aspects of infrastructure. With Ukraine's considerable natural resources, Ukrainian nationals had the opportunity to develop domestic industries independently of Russia even though the Ukraine remained dependent on Russia for gas. However, the ready-made nature of the infrastructure meant that once co-opted it was not open to competition. This made industry under the control of oligarchs inefficient; nevertheless this was tolerated because the government itself was composed of oligarchs. The tendency to inefficiency associated with the absence of competition was therefore sustained in Ukraine without being accompanied by the advantages of a well-established infrastructure. Inefficiency was even embraced because the introduction of subsidies to reduce commodity prices below their market price led to government indebtedness, which was desirable for prospective lobbyists who could acquire government bonds and consequently exert influence on policy. Because a principle way that government debts were being created was by energy subsidies, as revealed by the fact that in Ukraine in 2012 household gas subsidies were 7.5% of GDP, it wasn't only inefficiency of provision that was desirable for members of the chaotic bureaucratic-oligarchic order but inefficiency of consumption. That this form of inefficiency was realised is suggested by a study which revealed that in 2005 Ukraine used 138,000 British thermal units per year of energy per dollar of GDP compared to Britain's 6,145 BTUs.^{79 80}

Although much of the hostility towards Russia may fulfil a strategic purpose as suggested in the book 'The Grand Chessboard' by Zbigniew Brzezinski, it also consists of the acting out of 'memory wars'. With the same susceptibility to anti-Russian sentiment in the Ukraine it was easy for oligarch-controlled media outlets, such as Channel 5 which was owned by the two-time Ukrainian president Viktor Yushchenko, to rally the population

around the cause of the so-called February revolution. However this isn't to ascribe culpability for the recent crisis with the anti-Russian side alone, or even oligarchs in general: Ukraine is divided between the blue and gold factions representing the pluralist and monist traditions respectively, and since Glasnost no prime minister has succeeded in uniting both sides. Frustrated by the conditions in Ukraine but not understanding that the source of inefficiency and corruption owes to the priority given to business interests over national interests, voters whose party allegiances are less fixed are inclined to blame the nation's problems on the foregoing ruling parliament or president. As media outlets are owned by both monists and pluralists, radio and television stations and newspapers of either persuasion are free to blame the country's problems on the opposite faction.

Following the defeat in 1994 of the Ukrainian Communist Party candidate who had continued in office through the creation of the republic in 1991, the pro-Russian candidate from Dnepropetrovsk took power for two terms despite having allegedly requested the murder of an investigative journalist.⁸¹ In 2004, Viktor Yanukovich was named as the regime candidate though like his predecessor and others of different persuasions in Ukrainian politics, he had engaged in criminal activity in the past. Although Yanukovich would go on to win the 2010 election, the 2004 election was won by Viktor Yushchenko, but not before the first election was invalidated following popular protests against electoral irregularities. Spurred by the protests and wishing perhaps to instigate a proportionate response to the alleged vote rigging by the incumbent regime, amendments were introduced to significantly increase the powers of parliament and reduce the powers of the president; accordingly the corruption of the foregoing regime was not avenged through legal proceedings, but by amendments to the actual constitution. The powers of parliament were significantly increased and the president was no longer permitted to appoint the prime minister. At the 2010 election, Yushchenko gained just 5% of the vote. On this occasion the presidential campaign was fought between Yanukovich and Yulia Tymoshenko who though representing different ends of the pluralist-monist spectrum had a history of criminal activity in common; Tymoshenko, one of Ukraine's richest oligarchs, had been dismissed as deputy prime minister for the fuel and energy sector in 2001 for gas-smuggling and tax evasion, and was also revealed in the court proceedings as a 'co-conspirator' of Pavlo Lazarenko, former chairman of Dnepropetrovsk Oblast, who following his flight to the USA was jailed for eight years for extortion and money-laundering. Tymoshenko however, was never sentenced.

Following the narrow victory of Viktor Yanukovich in 2010, the Russian-sympathising PoR party sought to decentralise power, improve relations with Russia and raise the legal status of the Russian language.⁸² By the end of 2010, Yanukovich had forced a reversion to the original presidential system by bribing the Constitutional Court and was thus enabled to appoint his own prime minister in accordance with the 1996 constitution. It has been suggested that the 2012 parliamentary election was unfairly contested according to the 'abuse of administrative resources, as well as a lack of transparency in campaign and party financing and of balanced media coverage'.⁸³ Meanwhile, in October 2011 Tymoshenko was jailed in proceedings which were considered to be politically motivated.⁸⁴ Nevertheless, the corruption of Yanukovich's regime was neither unique in the history of Ukrainian politics nor directly related to his support for the Russophone population within Russia. While some of the recent surge of anti-Russian sentiment can be attributed to Yanukovich's abuses of

power as president and leader of the Russian-sympathising PoR party; the 2010 electoral cycle was particularly devastating to the PoR party for other reasons. Following Putin becoming the President of Russia in 2012, the difference between modes of governance in the Ukraine and Russia became increasingly apparent, and whatever the traditional allegiance of Ukrainian oligarch-parliamentarians, it was clear that Russia favoured a mode of government in which there was no scope for the bipartisan attrition which ensured the preservation of democracy and oligarchic dominance in the Ukraine. The role of foreign propaganda was also instrumental in the hostility towards Russia: Victoria Nuland, Assistant Secretary of State for European and Eurasian Affairs, revealed that the USA had invested over \$5 billion in democracy-promotion in the Ukraine since 1991.⁸⁵ The Ukrainian president therefore attracted strong criticism by failing to sign an EU Association Agreement at this time, although he was arguably just maintaining the tradition of the Ukrainian multi-vector policy which avoided committing Ukraine to fixed economic or geopolitical allegiances. Many would have thought of signing the Association Agreement as being a precursor to full EU membership but should Ukraine become a full member of the EU, not only would the EU be unlikely to accommodate the nationalist sentiments which motivate proponents of the monist tradition, but given the Eurozone debt crisis and the size of Ukraine it is doubtful whether the EU could afford to fund the reforms necessary for Ukraine to abide by the EU's Growth and Stability Pact. Russia's pledge of \$15 billion in immediate support as well as preferential gas tariffs would also have been instrumental in Yanukovich's decision to refrain from signing the Association Agreement.⁸⁶

The pragmatic opposition to Russia arising from political and business interests in the Ukraine was of a different character to the nationalist sentiments which were popularly felt; the alliance between protestors and political-oligarchic interests during the February revolution was most secure in its negative aspect, disdain for Russia. Should Russian influence be removed from Ukraine as part of a greater union with the EU, it is likely that Ukrainian nationalist groups would join other right-wing groups across Europe in their opposition to the EU and NATO, and despite the assimilation of Right Sector militants into the National Guard and their role in fighting pro-Russian factions in the Donbas; it is unlikely that such groups would find much traction for their nationalist agenda other than their Russophobia should Ukraine come into political union with the EU. Svoboda, which is allied with France's Front National and the Italian neo-fascist group Fiamma Tricolore, though holding only 8% of seats in parliament, were given five of the twenty-one seats in the cabinet of the unity government following the Maidan crisis. But in the event of closer union with the EU, it is likely Svoboda would be marginalised and could speak of betrayal with some sincerity. Even the level of nationalism espoused by the relatively mainstream president Yushchenko looks incompatible with EU philosophy: in 2010 Yushchenko awarded the title of 'Hero of Ukraine' to Bandera, a militant nationalist who was imprisoned for life for conspiracy to assassinate the Polish Minister for Interior affairs and whose radical wing of the Organisation of Ukrainian Nationalists announced the formation of a Ukrainian state in 1941 which was allied with the Nazis and responsible for atrocities against Jews and Poles, as well as Russians.^{87 88}

Although the legitimacy of Nikita Khrushchev's transferral of jurisdiction of the Crimean peninsula to the Ukraine in 1954 was contested, the transferral had little material

impact at the time because it was understood that the Sevastopol naval base was to remain indefinitely as an 'object of all union significance' and within the realm of Soviet influence.⁸⁹ In 1991, Yeltsin was urged to restore Crimea as a Russian territory but again the issue didn't seem critical—the UN had recognised Russia as the 'continuer' state of the USSR and so it was presumed that with regard to security and defence matters at least, the Soviet community would continue. Likewise commitments were given to Gorbachev that NATO would not extend to East Germany, and so it would have seemed ludicrous to seek assurances about Ukraine's non-membership of NATO. However, during the 1990s the Russian government was weak and maintained little control either over the activities of businessmen or its superpower status. Against the backdrop of Russia under Mikhail Gorbachev and Boris Yeltsin, it is understandable that many in the West viewed Putin's accession with disappointment. Before Putin was elected as President the USA and Europe had accorded Russia considerable respect: commitments given in 1990 before the USSR disbanded were honoured thereafter and America did resist acceding to the demands of Eastern European countries desirous of NATO membership. However, with Putin's accession to power, this restraint was shown to be conditional on Russia's compliance with orthodox Western political and economic methods. The abandonment of democracy in Russia, together with the co-optation of industry into state ownership, caused hostility in the West.

Although the secession of the Crimea didn't follow a referendum, Russia's responsibility to protect Russians living in the Crimea attenuates its culpability in breaching international law; while the crisis in Kosovo was of a much higher magnitude, Kosovo's secession could arguably be cited as a precedent for Russian intervention in the Crimea. Additionally, Russia's lease of Crimean naval facilities had been extended by 25 years effective from 2017.⁹⁰ The avowed nationalism of the new Ukrainian government and the anti-Russian sentiments which were openly espoused left Putin under pressure from his own people to protect Russians within Ukraine, and as well as the national interest in protecting the base at Sevastopol, there was also the danger that the weapons at the Sevastopol fleet could be misappropriated; a fear which was perhaps well-founded given the willingness of the Ukrainian military to use artillery and rockets against insurgents in Donbas despite their proximity to civilians.

The draconian treatment of protestors at the Maidan turned a protest movement which had begun as one largely composed of middle-class, middle-age men into an armed struggle.⁹¹ In Donbas as well, the will of the population was not represented by the marginalisation of moderate influences. A survey revealed that while support for outright separatism was relatively low, even in Donbas, 54% of the population 'supported different forms of separatism'.⁹² Following the Kiev election in October 2014, elections were held there which saw Zakharchenko win 75% of the vote in the Donetsk region and Plotnitsky win 63% in Lugansk.⁹³ In the event the elections were considered illegitimate by Western commentators on the basis that there were no voter lists and international observers were allegedly drawn from far-right European parties, although turnout was reported to be 75% in both regions.^{94 95} Soon after the elections, the central government in Ukraine withdrew state services in occupied areas.⁹⁶

As of June 2015 there were 1.3 million internally displaced people in the Ukraine and as of July 2015 the conflict had claimed nearly 7,000 civilian lives.^{97 98} Despite the fact that

Donetsk and Lugansk are heavily subsidised by Kiev, the area is valuable to Ukraine and accounts for 16% of Ukraine's GDP and 23% of its industrial output.⁹⁹ However, the presence of Russians in the area where the Holodomor tragedy occurred makes them, to many Ukrainians, inheritors of the Stalinist legacy by proxy, which helps legitimise the view of Russians as second-class citizens. Tymoshenko expressed this view tersely in an interview in which she said that Russians who stayed in Ukraine must be killed with nuclear weapons.¹⁰⁰ The second-class status of Russians is also apparent by the fact that the interim government has resisted the aspiration for Russia to become the second state language. By ceding to the demands of separatists for the creation of their own infrastructure, perhaps in just part of Donbas, Kiev would be gaining peace and stability at relatively low cost, while for persecuted members of the Russian Ukrainian population there would be a sanctuary.

At the UN General Assembly following the annexation of Crimea, eleven countries voted against the condemnation of this action including Cuba, North Korea, Venezuela and Bolivia.¹⁰¹ Many other South American countries abstained as did all the other BRICS nations.¹⁰² In order to judge the ethical basis for Russian support of the Donbas insurgency it is important to understand the importance of Ukraine to Russia. Russia does not consider itself a defeated power, and so the assimilation of the Eastern Bloc into a European and US sphere of influence would be unjust to them. Also, while it is important for a sovereign country to choose the international alliances it forms, in the case of the Ukraine it is clear that, while one side has outnumbered the other at different times, the country is divided between monist and pluralist traditions and can only progress if both of these tendencies are accommodated. The loss of Russian influence in Ukraine not only contributes to the alienation of Russian settlers but it commits Ukraine to a future which the population can only envision in its negative aspect, the absence of Russia. The USA's \$5 billion investment in democracy promotion in the Ukraine is likely to have entailed promoting awareness of the threat of continued Russian imperialism, but the militancy this has contributed to is inconsistent with the Western model of statehood.¹⁰³ However, although Russia is opposed to the incorporation of more and more former Eastern Bloc countries into European political and economic union, there are contrasting views in Eastern Europe about how best to manage the superpowers on its borders. As in Ukraine there are Russophobic elements in Poland, but the Polish foreign minister was recently caught lamenting how the USA's involvement in the region had brought a false sense of security and that their involvement would be the cause of conflict with both Russia and Germany.¹⁰⁴

Economic Sanctions Against Russia

As well as being confronted with the possibility of a former Soviet Union republic being assimilated into NATO, Ukraine's admission to the EU would result in Russia suffering economically. If Ukraine's custom tariffs are nullified, EU goods would be more affordable to Ukrainian consumers and this is likely to result in Ukrainian goods being dumped on the Russian market, resulting in an estimated \$3 billion of losses to Russia.¹⁰⁵ Putin has also expressed concern that stringent EU regulations would block Russian access to the Ukrainian market. Putin's actions in response to the threat posed by the Ukraine crisis have provoked

several rounds of sanctions from the EU and the USA, which have taken the form of asset freezes and travel bans for officials implicated in the recent events in Ukraine or the annexation of Crimea as well as sanctions on technology companies and people close to Putin. The sanctions in October 2014 affected Russian energy industry by prohibiting the supply of some equipment related to the oil and gas industries, and by restricting technologies and services available for specific oil projects in the future. Due to the fall in prices and a loss of funding following Western sanctions, Rosneft's plan to build an LNG plant at Sakhalin is likely to be delayed for at least two years.¹⁰⁶ In addition, a number of Russian state-owned firms have been prohibited from raising capital or borrowing on European markets.¹⁰⁷ Although in the short-term the sanctions imposed by the West are likely to damage Russia's economy, Russia, perceiving the West to be an unreliable source of trade, will be encouraged to strengthen trade relationships with other nations. Although China and Brazil do not have technical expertise comparable with the USA, China is the fourth largest oil producer in the world and uses highly advanced recovery techniques to extract fuel from oil fields with declining returns.

Whereas US strategic gains from sanctions are offset only by the \$26 billion of trade it conducts with Russia each year, in 2012 EU-Russian trade amounted to \$370 billion; about half of Russian exports are bound for the EU and 45% of Russian imports come from the EU.¹⁰⁸ Russia had been the largest single trading partner of Germany until 2012-13, when they were superseded by Poland in this capacity.¹⁰⁹ Gas supply to the EU is crucial because for the period between now and when the EU develops a comprehensive renewable energy infrastructure, gas is vastly preferable to coal as a fossil fuel. Currently about one-third of EU gas comes from Russia and about 40% of this is pumped through Ukraine.¹¹⁰ Should Russian gas be available to EU nations no longer, the viability of the sustainable energy revolution in the EU may be compromised. Despite their dependence on Russian energy the EU as well as the USA has attempted to disrupt the construction of South Stream, a 2,446 kilometre pipeline designed to circumvent Ukraine and join the main distribution network in Austria.¹¹¹ In order to disrupt the scheme, a series of legislative acts were devised which included 'a provision that prohibits gas-producers from owning primary gas pipelines'. As well as discriminating against Russian market access the motivation for this legislation was to leave the market clear for the United Gas Transmission System which, following a law passed by the Rada in August 2014, can now be transferred to a consortium of American and European investors.¹¹²

In July 2014 there had been an intense round of diplomacy led by Germany and France which culminated in a provisional deal which included a ceasefire, further talks with the Organisation for Security and Co-operation in Europe and talks concerning the cessation of supplies to the Donbas insurgents.¹¹³ At the time the absence of US representatives was welcomed as Lavrov notes 'Our American colleagues still favour pushing the Ukrainian leadership towards confrontation'.¹¹⁴ An example of the alleged confrontational attitude maintained by the USA was recorded in a Washington Post editorial in which the opinion was given with regard to the Donbas crisis that 'a failure by the West to act following such explicit rhetoric would be a craven surrender that would provoke only more Russian aggression'.¹¹⁵ In the event, following the talks, Russia withdrew its support to the rebels and the rebels retreated from Slavyansk, but on July 16th the USA delivered another round of

sanctions which would have cast Russia's continued appeasement as capitulation should their appeasement have continued, and so it was curtailed. Of course Russia needn't have shown more concern for maintaining defiance in the face of provocation than in instigating a peaceful outcome to the crisis, but still it would have been very difficult for Putin to withdraw support for the insurgency at this time because in doing so he would have risked disfavour from the large swathes of the Russian population who supported the insurgency. Meanwhile the USA perceived the provocation of Russia to be necessary in order to reclaim the moral authority Russia was perceived to have taken following their criticism of Western interpretation of the UN resolution allowing military action in Libya in 2011, as well as their repeated vetoes of Western draft resolutions in the UN security Council designed to demand Bashar al-Assad's resignation. On 30 September 2015 Russia began a campaign of air strikes against targeting militant groups opposed to Assad's regime, but such is the nature of the conflict that though many of the groups Russia is attacking are groups which are supported by the USA, the USA and Russia's have their greatest enemy in common in the form of ISIS.

In February 2015 in Minsk, the leaders of Ukraine, Russia, France and Germany came to an agreement which was signed by pro-Russian separatists. In it the separatists agreed to a number of terms including: the 'release and exchange of all hostages and illegally held persons', pardon and amnesty for activities in 'particular departments of Donetsk and Luhansk Oblasts of Ukraine', allowance of the distribution of humanitarian aid and the 'pullout of all foreign armed formations, military equipment and also mercenaries from the territory of Ukraine'.¹¹⁶ The agreement also legislated for a 'complex process of constitutional decentralisation to increase the political autonomy of the Donbas', thereby providing the small degree of separateness the majority of the population favours, as discussed earlier.^{117 118} The agreement had been criticised for delaying the restoration of the Donbas to the Ukraine to late 2015, but this seems a small price to pay for peace and for the IMF support offered to President Petro Poroshenko in return for his compliance.¹¹⁹ Following Russia's non-compliance with the terms of the Minsk agreement, it was announced in December 2015 that economic sanctions would be sustained for at least another six months.^{120 121} This is likely to prove especially problematic to Russia because of the recent drop in world oil prices.

Chapter XII: Security

Risk Assessment

Where an increase to population density is accompanied by advances to communication networks and military technology, the risks associated with responsibility devolving to an individual or a group of individuals, though they may be well-qualified, assume greater proportions. The fear of the expedients of impact and immediacy being abused causes discretionary action to be perceived as something to be universally legislated against; however, in this era of unprecedented population growth and unprecedented technological advancement, economic and political paradigms validated even in the recent past are rendered obsolete. In view the swift obsolescence of former paradigms, the obstruction posed by historical safeguards may be more dangerous than the risks they guard against.

Nuclear Disarmament

The total abandonment of nuclear weapons seems likely to be politically impossible at present because there is not sufficient trust between the nuclear-armed nations. While the probability of nuclear war is much less than that of terrorist acts, the destructive potential of a nuclear attack is of a high order of magnitude. Given then that the hazard of nuclear aggression can then be considered as approximately equivalent to the threat of domestic terrorism, and that no-one would wish to remove safeguards against the latter for savings equivalent to the cost of the Trident defence system in the UK, the removal of nuclear defences would seem to be a leap of faith too far at this time. This is especially so because there are four nuclear-armed countries who are not signatories to the Non-Proliferation Treaty (NPT), and arguably all of these countries have a limited tradition of international diplomacy. Possibly disarmament might be achieved by allowing the weapon defence systems of all NPT countries to expire and allowing all warheads to be dismantled whilst diplomatic pressure is exerted on the non-NPT countries. In this way if disarmament is curtailed for some reason, the remaining operational nuclear arms of whichever NPT countries remain nuclear-armed could act as insurance while nuclear defences are rebuilt. While this places a great responsibility on remaining NPT countries not to abuse their nuclear hegemony, it could be argued that the trust which would have to be adopted by former NPT countries should they lose their nuclear capability would only be the same as that which countries without nuclear weapons at present must maintain. However, at present the tension between the NPT countries precludes collaborative domination; moreover, as the diplomatic relations between some of the NPT states are among the worst in the world, it might be that should the staggered obsolescence option be taken, one country, having promised not to renew defences, would refuse to admit nuclear inspectors, or there may be a dispute over the privileges given by fortune to the last remaining nuclear-armed country or countries, who would of course see their prominence in military terms multiply as the other nuclear-armed states disarm. If for instance the UK was to dismantle its warheads it would be become even more in thrall to the

USA's military might. For this reason if disarmament could be agreed by consensus it would be better to set a deadline in the medium-term future for universal nuclear disarmament and for each state to be compensated for the remaining time their defence systems would have been operational for, from a central fund contributed to by each nuclear-armed state in proportion to the value of their arsenal.

The best argument for retaining a nuclear deterrent is that there has been no world war for seventy years and the presence of a nuclear deterrent helped keep the conflict between the Russia and the West 'cold' in the latter half of the last century. However, the USA and Russia came very close to using their weapons of mass destruction and the effect of this could have been several times greater than a world war. Also while one advantage of keeping nuclear weapons is that the prospect of repercussions forces non-nuclear nations to respect the interests of the potential aggressor; with immunity from the gravest threat there may be the temptation for nuclear-armed states to not seek avoidance of conflicts with so much determination. There may be states or other entities to which mutually assured destruction would not be a sufficient deterrent, but if such a state were capable of reinforcing hostility with decisive military resistance and proof of their aggressive intentions were sought by provocation, the case of the party seeking proof might be compromised and the process of containment rendered illegitimate.

The development of nuclear reactors which use low-enriched uranium poses an additional risk because although building such a reactor would not be easy for a rogue state or terrorist group, it would however be simplified by the absence of the requirement to enrich uranium to such a high a level. Nevertheless, the gravest threat remains the misappropriation of plutonium: conceivably a nuclear bomb with the destructive force of the Nagasaki explosion could be constructed with just 10kg of the substance (see Chapter VII: Reprocessing).¹

The Special Demonstration Squad

In 1968 a new unit was created within the Special Branch of the Metropolitan Police known as the Special Demonstration Squad (SDS). The officer who called for the creation of the SDS observed that protests over the Vietnam War were becoming increasingly confrontational and that the intelligence provided by informants was insufficiently extensive or reliable. For this reason he proposed the creation of a fleet of spies who would be authorised to infiltrate protest groups by impersonating protestors for long periods of time so as to gain access to high-level intelligence. The SDS was considered to be an elite squad of the Special Branch which was itself considered superior to the rest of the Metropolitan Police. The motto of the squad was 'by any means necessary' and following a series of revelations which began with the spontaneous confessions of a police mole working with an environmental group in 2010, the public has been made aware of the disproportionate force used against protestors who for the most part were merely exercising their democratic right to peaceful protest. In their book 'Undercover', Rob Evans and Paul Lewis reveal that of the ten SDS officers undercover at the time of the events described, nine had sexual relations with their 'targets'. One officer, Paul Black revealed that 'basically, it's just considered part of the

job', a way 'to maintain your cover or maybe to glean more intelligence'.² Although they knew their assignment would only be temporary, some offices even fathered children with targets. Spies would instigate sexual relations on the scarce pretext that doing so would enhance their credibility to protestors and allay suspicions of their true loyalties. The girlfriends of two police spies who at the outset had little or nothing to do with the target organisations describe how the spies attempted to radicalise them to enhance the spies' credibility upon approaching target organisations.^{3,4} One officer took advantage of family illness and bereavement issues which were causing tension between a protestor—who considered the spy a close friend—and the protestor's girlfriend, to seduce the protestor's girlfriend; saying he loved her, but then apparently losing interest soon after; in this way neither furthering strategic interests nor evidencing the feelings he professed which might have otherwise mitigated his culpability.⁵ The aggrieved boyfriend has claimed that the undercover officer systematically targeted vulnerable women to use them to infiltrate the groups.⁶ The spies' remit for entrapment and provocation is suggested by the fact that until the pre-emptive arrests for conspiracy which were made in advance of a protest at a power station in Nottingham, all the foregoing arrests of campaigners were made after the crimes were committed. In parliament in June 2012, Caroline Lucas MP told the story of one spy who not only encouraged the Animal Liberation Front in their tactics, but is alleged to have actually caused arson by placing an incendiary device in a department store which sold fur.⁷ Given the fact that police spies rose to positions of prominence in protest groups they would have certainly had the opportunity to direct illegal action, and one protestor alleges that the undercover officer whose confessions precipitated the outing of the SDS directly incited violence—pointing out to the protestor that the peaceful methods he was using were ineffective but that he knew some 'extremely heavy people' who could come to the site of the protest in Iceland and inflict real damage.⁸ Following the revelations about the same spy's involvement with campaigners in Nottingham, he was labelled as a possible agent provocateur by the appeal judge who following revelations about the spies role, exonerated all twenty defendants convicted of conspiring to break into Ratcliffe-on-Soar power station.⁹

Consistent with the dubious nature of the assignments, the suitability of the operatives chosen for undercover work is questionable. The officer whose confessions began the sequence of disclosures among SDS officers was understood to have pined for the company of the protestors he had infiltrated.¹⁰ However, his feeling of kinship was not disinterested enough to return to them outside of the capacity of a detective, albeit one funded by a private agency. The officers must have exhibited a high level of discipline in their prior police work in order to be appointed to the squad, but for work which involves a high degree of lone-working, it is self-discipline that is required and these officers, like members of the Bullingdon club, took the privileges they were given to live out their fantasies. The officer who returned as a private detective has since announced his intention to sue the Metropolitan Police for £100,000 in compensation, claiming that he suffered from post-traumatic stress disorder. Two other officers have also sued the Metropolitan police for the emotional trauma they suffered upon returning from the undercover assignments. One of these officers said he 'wanted to force the Met to implement better care for future SDS spies'.¹¹

The Special Branch are required to spy on individuals and groups which are thought to be subversive, but over the years the definition of subversive has expanded to encompass

more people and interest groups. By the late 1970s, a 'subversive' could be anyone who it was deemed would 'threaten the safety or well-being of the state'.¹² However, what constitutes the well-being of the state depends upon who is asked and crucially, in the event of conflict between a protestor's definition of the state's well-being and that of the police, the protestor's definition might be dismissed along with their right to public expression and freedom of public assembly. The SDS has justified the infiltration of peaceful activist groups by the access they give to groups advocating violence. Yet no evidence has been provided of a risk-assessment which sets the benefits of arresting activists who advocate illegal methods against the deception and sexual crimes waged against large numbers of activists, who though perhaps annoying, may yet be innocent of any crime. A one-time MI5 officer who resigned in protest of its activities observed that all of the left-wing groups who were deemed by MI5 to pose security threats 'were using democratic methods to make their case, such as standing in elections, organising demonstrations...', while the judge presiding over the Ratcliffe-on-Soar case described the protestors as 'decent men and women with a genuine concern for others and in particular for the survival of planet Earth'.^{13 14} Perhaps the presence of these good intentions in targets the police were charged with pursuing has been integral to the discomfort experienced by officers withdrawing from their undercover roles, their avowed insouciance notwithstanding.¹⁵

Domestic Deployment

From here on in, the term 'security services' is used generically in reference to any kind of domestically orientated police, MI5 or military intelligence entity. Later in the chapter I write about the various forms of persecution that could conceivably be visited on marginalised individuals. I do so speculatively, in the knowledge that there *will* be people employed by the security services who are keen to guard against the excesses described.

Although the security services operate according to a strict internal hierarchy, as a whole it is set above civil society; therefore even if a monitoring operation is found to serve no direct purpose, agents may appear vindicated on the basis that they are helping to uphold behavioural norms, or to establish new ones in response to the challenges of multiculturalism. Public engagement might even be seen as an amusing diversion. The loyalty of service personnel is to their commanding officer and the loyalty of the commanding officer is supposed to be to the national interest. But where there is a weak government decisions about security may devolve to the security services themselves, and even where government is strong it may still fail to give sufficient consideration to the effects that the unilateral pursuit of national interests has on the rest of the world, or recognise that the repercussions of unilateralism are likely to be re-visited on the offending nation in the future. In countries which have national service requirements, the conscript segment of the forces does at least reflect the profile of the civilian population. Although the military in these countries will still operate as a closed system to some degree, the greater diversity among cohorts when appointments for senior positions are made ensures that there is a greater chance of harmony between the military and civil society, as long as during conscription the distinction between

the military and society is not drawn so sharply as to inculcate ultra-nationalistic attitudes among conscripts.

Where the supply exceeds the demand for security there is the possibility that the military as well as the police may be involved in constructing security dilemmas in which evidence of malicious intent is contrived by covert provocation for the purposes of self-validation and self-propagation. Therefore, it is necessary to find a meaningful occupation for soldiers in peacetime. Conveniently, there is a need for emergency provisions to be established and maintained in case of resource scarcity or a similar crisis. Given the complexity of domestic infrastructures in developed countries, a serious crisis could even occur with a relatively moderate shortage and when steady economic growth is followed by contraction relative deprivation will be experienced according to the gap between expected and real consumer utility, even if the concessions required are quite modest in real terms. Because politicians have been left with restricted experience of executing all but a narrow range of policies, the military might be best placed to maintain law and order and basic life provisions in the event of a serious crisis. The military could also be employed to render emergency relief abroad and help assist with agrarian reform programs (see Chapter VIII: Proposals). All these measures could be taken under the banner of an EU armed force.

Civil Incursions

The police and military, because of their strict procedural codes, may attract some people with less interpersonal empathy whilst the interpersonal empathy of others is kept within institutional bounds (see also Chapter V: The Politics of Empathy). Members of police and army intelligence units might therefore feel more comfortable deferring their intuitive faculty to definite systems or procedures for establishing guilt. In the first decade of the twenty-first century, funding doubled for the policing of those people and groups branded by the new label 'domestic extremist', a term which has perhaps helped the public as well as the security services consider political activists as being on the wrong side of the 'war on terror'.¹⁶ It was possibly because of this association that SDS personnel were able to exercise considerable autonomy in their pursuit of marginalised individuals, and rely on their instincts which are likely to draw from the strong element of tribalism in the police and armed forces: a tribalism which as explained, has allowed 'lefties' to be treated with the contempt otherwise reserved for criminals or perhaps even foreign enemies.

Where the risk posed by a pursued person is non-apparent, the implementation of systematic methods for ascertaining guilt-probability could conceivably be exploited by higher authorities to vindicate their seemingly unnecessary intervention and to allay suspicions of conspiracy which may otherwise take hold among junior ranks. The cost of pursuing a likely-innocent party could be sanctioned because the public opinion success is measured by is not susceptible to unseen activity, though the social cost of this unseen activity could be the persecution of thousands of people; some of whom may be driven to suicide or to the control of psychiatric services if it is convenient to present targets as delusional. Despite a low probability of guilt having been ascribed to the person or group, because risk-assessments are skewed, their surveillance and intimidation may be warranted

on the basis of the risk they pose being tangibly greater than zero. It is possible that those in high command may actually deceive themselves as well as their subordinates in order to act upon what may in reality be indignation at perceived insubordination at criticism from civilians whose consequent experience of persecution—as well as being an offence its own right—may be the cause of resources being diverted away from apprehending child sex-offenders and would-be suicide bombers.

There is scope for permutations of the method of infiltration used by SDS agents which could achieve the same penetration without attracting the same degree of censure. One protestor recalls how the police officer assigned to infiltrate their protest group ‘trivialised what we were doing to the point that I started to question why we were even bothering’, that ‘it was like (the spy) had been instructed to hold up a distorting mirror to anarchists in Cardiff, to dig away at their spirit’.^{17 18} Undercover police with dominant personalities and wit could prove effective in compromising target organisations by disheartening activists and draining popular movements of their support without taking the risks associated with gaining privileged access to intelligence. Already the willingness for so-called domestic extremists to exercise their right of association by forming coherent interest groups will be tempered by their knowledge of past police infiltration, and their caution will be reinforced by the fear that even should they succeed in unmasking the spies, this may be no proof against the continuation of spies’ undercover activity. Also, protest groups will be frustrated by the ease with which their electronic communications can be monitored remotely. With modern technology at spies’ disposal, the scope for sabotage and intimidation is vast. Should the security services decide that an alleged domestic extremist can be monitored most effectively by orchestrating a sexual union between the target and an undercover agent, it might be possible for them to sabotage other attempts the target makes to form relationships with other people so that a hook-up might be feasible even if the nature of the arrangement is known to the target. Also, given the public appetite for reality television, it is conceivable that members of the police, who perhaps have the best stories of all service personnel, would be approached by figures in the entertainment industry to provide reports which could be re-packaged as entertainment. However, undercover agents, having been instructed as to where the threshold between lawful protest and domestic extremism can be drawn, and having gained the friendship of protestors, might need only apply the force of their edgy personalities to the espousal of strong but politically correct opinions to convince the protestors that the level of activism thus modelled is sufficiently forceful to achieve any objective which is conscionable. Protestors could be thus conditioned to approve of the ridicule of anyone who exceeds this arbitrary threshold.

Former undercover SDS agent Robert Lambert has since spoken out to criticise the ‘war on terror’ as being excessively confrontational, and advocates instead an ‘outreach approach’ in order to isolate the more extreme elements.¹⁹ The problem is that in some ways, certainly in terms of alcohol consumption and fornication; the values of the some parts of the security services—even more than the general public perhaps—are diametrically opposed to those of Muslims. Therefore it may be that, as a generalisation, the security services are ill-suited for diplomatic work among Muslims. It may be that to many undercover officers, the practices of Muslims and even some non-Muslims are sufficiently different from their own that it would seem to them that all Muslims are effectively of the same ilk as genuine

extremists. In this way, those who have no intention of committing acts of violence might be mistakenly persecuted. This is especially likely given the past record of the police discriminating on grounds of race, as in the Stephen Lawrence affair. The effect of police brutality and harassment should it be directed against Muslims might prove to be a self-fulfilling prophecy as Muslims turn to extremism to resist their antagonists who, given many Muslims' limited exposure to the rest of British society, might come to represent British people in general for them, just as how for members of the police and armed forces Islam may be synonymous with extremism.

Having identified an adolescent whose exceptional or unusual proclivities have not been successfully patronised, it might be reckoned that the risk of these proclivities becoming a threat to the establishment cannot be left unattended, though the criminality of the individual may by no means be well established. Perhaps the decision to pursue such a target may be taken by an authority sufficiently remote from the realities of the target's life that an impairment of empathy at the point of case creation is understandable; however the agents who are in direct contact with targets would not act in the capacity of automatons; they are likely to have been chosen for their emotional perspicacity and their personal qualities would be integral to the success of any subterfuge or intimidation campaign. Conceivably resources may be available for targets to be monitored at university and intimidated directly by a spy, who perhaps being a few years older might succeed in alienating the target from their friends at the same time as terrorising them in various ways. It may even be deemed desirable for the target to commit suicide or be 'spooked' so that they can be ushered into the care of psychiatric services. In his or her other role of propagandist, which serves the purpose of quelling subversion less directly, the spy cum activist might express strong political views which though limited to party politics, are expressed in earnest, and in juxtaposition to the views he or she might caricature for humorous effect: those which his audience is compelled to ridicule and which they are led to believe belong to the would-be domestic extremist, though the views of this target may not of course be illegal or incite violence. It is doubtful whether the threat posed to the public by such a target justifies the security services in closely monitoring targets or in allowing and perhaps encouraging spies to use the full scope of their personalities to attempt to destroy the target's cause, as well as perhaps his or her life. However, it is conceivable that such a situation could occur. Perhaps in their defence, the security services could cite the family history of the target or things said by the target which, discounting ironic intent or the context, could be construed as truly sinister, and thus justify the infiltration. Perhaps someone in an official capacity would be duty-bound to act on these prompts but if the official process is so devoid of subjective judgement, the free-rein of his colleague the spy would be inexplicable. And surely a spy who has the requisite emotional intelligence to wage a subtle and successful campaign of persecution would be able to ascertain the import of most dubious statements.

Although the intelligence services must of course apply certain standards during their recruitment process, while they favour recruits who by virtue of their education tend to have values which reassure rather than challenge the paradigm intelligence services operate by, they are far from representative of the population they seek to protect and are prone to the errors which plague closed systems (see Chapter IV: Therapeutic Approaches). The attitudes of the intelligence services, which are transmitted to the police, are flattered by the first past

the post electoral system which prevents alternative voices from being heard in parliament and so facilitates the connotation of extremism being extended to these voices. The importance of retaining the status quo is therefore likely to be overstated and the risk assessments undertaken by the intelligence services are likely to be skewed. The justification for creating a security dilemma in the name of preserving or gaining a sphere of influence is therefore likely to be overestimated.

A security dilemma necessitates the fabrication of an enemy and this can be achieved by provocation or even simulation which allows for the portrayal of the fabricated enemy as volatile and deserving of continued or enhanced surveillance and censure. Conceivably, in conveying the mission objective to the police or military intelligence personnel, the real incentive could be concealed in order to justify the persecution which of course may otherwise be unconscionable to the operatives. The operatives assigned to intimidate the maligned party might believe them to be a terrorist or a paedophile and might be operating on the premise that only the scant availability of evidence is preventing the pursued party from being brought to justice. In this situation the pursued party would be given no opportunity to defend himself. Having intelligence enough to perceive the misguided suspicions of the operatives who pursue him, the target is nonetheless liable to increase the suspicions of the police assigned to his case should he make known his own suspicions of their intentions in his frustrated desire to assert his innocence. Being disinclined to admit that their covert operation is anything but immaculately conceived, they would then ascribe the proclamation of innocence as having no possible origin other than a bluff arising from the target's own recognition of the act he is ostensibly suspecting of committing or planning. Should the persecuted party make known his suspicion of being pursued he may easily be portrayed as paranoid and subjected to the intervention of psychiatric services which may not, despite thus working in collaboration with the intelligence services, be aware of the real grounds for the persecuted party's suspicion. There may be scope for the police or military to collect evidence for the case for incarceration and/or medical neutralisation in 'real-time': an agent who, depending on the degree of intimidation required, may or not be versed in the same lies as other pursuing operatives, could take a job alongside the persecuted person in order to create conditions which are calculated to provoke behaviour which allows the persecuted individual to be presented as a threat to themselves or others. They might make the target's colleagues aware the target is being watched but seem so pleasant that the motive for observation is presumed to be pure to outsiders, whilst perhaps reinforcing the ostracising effect with recourse to cultural allusions designed to appeal to the sympathies and antipathies of the groups' collective unconscious. If all this does not succeed in provoking a reaction which can be represented out of context, if necessary, to discredit the target, more ad hoc scenarios might be contrived, which, using available intelligence about the tastes and values of the targeted individual, would be designed to cause them maximal annoyance without arousing their suspicions in time to forestall a reaction.

There may be scope for a provocative situation to be waited upon or even staged near to the individual's home so that while recording equipment capable of detecting sounds remotely may be in operation nearby, the individual has less cause to suspect he or she is the subject of surveillance. Surveillance at the persecuted person's home could even be a permanent fixture. Although the individual who within the confines of his own home

simulates a return of the perceived violation of an annoyance with recourse to whatever language is convenient in meeting this need, is not in this way expressing a considered opinion which is replicable in a social or professional situation, the recording may conceivably be presented out of context by the security services to defame the character of the individual in the event of this proving a useful blackmail tool. Conceivably individuals representing the security services, feeling annoyed or frightened by something revealed in their footage, might contrive ways to return the insult as if the individual under surveillance actually set out to offend them personally.

It is possible that media workers or members of the business community could undertake private surveillance by using similar methods to those described without recriminations by leading the target to believe the harassment they experience is officially ordained. Already the number of corporate spies posing as protestors exceeds the number of police spies and the National Public Order Intelligence Unit (NPOIU) is a case in point, it having been taken over by the Metropolitan Police Specialist Operations Business Group.²⁰ As a private company the NPOIU is exempt from freedom of information laws and is unaccountable to the public, despite being funded by the Home Office.²¹ While the security services can do little about the general transferral of influence from national governments to global financial markets (see Chapter X), the security services can at least, both for the public welfare and for the sake of their reputation, prevent instances of corporate spies or private investigators masquerading as state spies, that is, as long as corporate interests have no recourse to suing the security services in investor-state dispute settlement arbitration courts, in the event that the security services fail to prevent activism which compromises corporate interests (see Chapter IX: The Transatlantic Trade and Investment Partnership).

Hacking

With more and more activity confined to the internet, access to personal correspondence and browsing habits allows hackers intimate knowledge of their targets. Whereas burglars are typically subjected to strict punitive measures, hacking is often considered a petty offence or even a laudable one. While the hacker's action may be limited to just one of sabotage, misrepresentation, voyeurism, intimidation or larceny, the victim's anticipation of the potential threat—conceivably all listed offences in combination—reinforces the violence of the act. For many of the present younger generation, the political representatives of the future, already it is difficult to remain socially included without filing thoughts and feelings on social media, and already social media platforms are required to co-operate with governmental data collection policies. IT and social media magnates may be geniuses of their trade, but they are nevertheless not necessarily warranted in acting on behalf of the public for the purpose of political selection. Yet the privileged access to information these people enjoy could see them assimilated into government power structures while their platforms become the propaganda wing of economic or political regimes. In the future any candidate virtually anywhere who is unsympathetic to the prevailing regime could be identified and politically neutralised by means of abundant satire or by presenting potentially compromising private information in a certain manner to the electorate.

Amnesty

It is proposed that there might be a degree of immunity from criminal prosecution for members of the security services as well as corporate actors who have been complicit in unwarranted persecution. Amnesty is a necessary strategy because continued security requires the compliance of the existing economic and military order. This might be very hard to take for victims desirous of justice for themselves or loved ones, but faithful people must content themselves that those who have perpetrated crimes against humanity will be judged by God. Nevertheless it would be a mistake to make repentance of material significance as this risks giving credence to the specious form of repentance which can be rehearsed even while the crime is committed. Naturally those capable of the foregoing instances of dissimulation are likely to be capable of feigning repentance as well. Such people are however likely to be pragmatic and able to acknowledge the mutual advantages presented by an amnesty. Meanwhile those whose complicity has arisen for misguided ideological reasons are likely to be attracted by the promise of just governance and the prospect of a purposeful security service which would help prevent incursions into civilian life whilst facilitating the changes to society this work has attempted to elucidate. However, as an amnesty for all criminal activity is impossible it would be inconsistent for there to be no recourse to criminal law where transgressions have been more serious.

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