# Secularization of the West & the Rest
## The Legacy of Jeremy Bentham
## Part II
## Disestablishment

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# Part II
# Disestablishment

## 1.0 Summing Up Part I

In Part I it was demonstrated that a theological compromise made in the 1650s at the height of Cromwell's Commonwealth led to the secular AND religious legitimization of experimental philosophy, *a.k.a.*, the natural and engineering sciences.  This was realized with Charles II's 1662 Charter to the Royal Society of London for the Improvement of Natural Knowledge.  The Scientific Revolution began in earnest with Isaac Newton's clockwork universe adopted as icon by the Church of England in competition with the Church of Rome.  No more miracles; no more superstition; only the Bible and Science reading God's second book – Nature.

The ascent of experimental philosophy left moral philosophers searching for the societal equivalent of Newton's clockwork universe.  The answer was Utilitarianism, especially the thought of Jeremy Bentham (1748-1832) expressed as *Ethical Hedonism*.  The answer was the greatest good for the greatest number measured by atomic units of pleasure/pain called *utiles* with pleasure and pain serving as the "sovereign rulers of the State" in Bentham's words.

Among his disciples were the Philosophical Radicals who became the Liberal Party of the United Kingdom.  They used Bentham's felicitous calculus – the calculus of human happiness – to institutionally transform the U.K. and its Empire from a feudal into an industrial society.  Their achievements, among others: constitutional and local government reform, the end of slavery; responsible government in Canada and eventually universal suffrage; the supremacy of the legislature expressed as compulsory public education, health and safety; penal and criminal law reform as well as a modern police force; welfare reform; and, founding the first English university accepting non-Anglican, non-male and non-white students.  These achievements were based on the premise the happiness of a pauper is equal to that of a prince expressed in the euphemism: An Englishman's home is his castle.  Democracy took root in England through Benthamism dodging the Republicanism of the United States and France.

Then, in the 1870s, Bentham's felicitous calculus married Newton's calculus of motion giving birth to the Marginalist Revolution in Economics.  Economics shifted from analysis of the distribution of national wealth among classes to the efficiency of the atomized consumer and producer with X marking the spot where the willingness to buy (Demand) equals the willingness to sell (Supply) based on Bentham's reification of happiness – the presence of money brings pleasure, its absence brings pain.  One's willingness to pay $10 for a DVD is a measure of the utility or happiness one hopes to derive from it.

## 2.0 Disestablishment

In this presentation I come not to praise but nonetheless cannot bury Jeremy Bentham because he is literally stuffed sitting in his *Auto-Icon* (his term, it's on wheels) at University College London.  Here sits the Marx of Capitalism, the Lenin of the Administrative State, architect of the Panopticon, predecessor of George Orwell's *1984* and the NSA.  Urban legend says he is wheeled into meetings of the Regents whose minutes read: "Jeremy Bentham present but not voting".

While I cannot bury him I can shake his pedestal and disestablish some yet must confirm other parts of his legacy.  I am not the first.  As noted in Part I economists for over a century and a half have attempted to do so.  This includes the American Institutionalist W.C. Mitchell who concluded "Bentham's conception of human behavior is artificial to an extreme degree" (Mitchell 1918, 183) to John Maynard Keynes in 1949 concluding "it was the Benthamite calculus, based on an over-valuation of the economic criterion, which was destroying the quality of the popular Ideal"  (Keynes 1949, 97) to Joseph Schumpeter calling Bentham's "the shallowest of all conceivable philosophies of life that stands indeed in a position of irreconcilable antagonism to the rest of them" (Schumpeter 1954, 132-4).

## 3.0 Trialectics

For my part I apply a simple thought device to assess Bentham's legacy.  I call it *trialectics* and is derived from the work of technological forecaster and systems philosopher Erich Jantsch (1967, 1975, 1980).  I will define the tool and then apply it.

Before doing so, however, it is appropriate to briefly consider my guiding methodology from which trialectics is derived – trans-disciplinary induction (TDI). TDI is the search for commensurable sets or systems of ideas (ideomorphs) shared across different knowledge domains, practices, disciplines, sub-disciplines and specialities of thought.  It involves circumambulation around a research problem using many different disciplinary lenses.  It involves skimming off findings at the event horizon of a discipline of thought before they become embroiled in intra-disciplinary debate or dispute, *e.g.,* the economics of Keynes *vs*. Keynesian Economics.  Given the increasing incommensurability of knowledge within and between knowledge domains finding shared or common conceptual structures should facilitate communication and permit us "to glimpse a  constructivist companion to the reductionist thesis" (Kauffman 2000, 268).  As will be seen, I call it 'design'.

Trialectics involves resolution of opposites or *enantiodromia*.  This is an old philosophical problem dating back to ancient Greece and in China as *ying* and *yang* even earlier.  Hegel called it 'dialectics' describing the process whereby

contradictions merge into a higher order truth comprehending both opposites. This is synthesis whereby thesis and antithesis are resolved.

Jantsch would see opposites from above as observer. The relative position defines viewpoint. Initially think of an equilateral triangle – all sides the same length. The base shows opposites black at one end and white at the other. The apex or top is the 'objective' observer equidistant between the polar opposites. If, however, the observer is biased to the left or right the view is slanted towards the nearest pole. Alternatively, think of a sound mixer with a column of colour rising and falling reflecting the relative balance of high/low.

In what follows I attempt to resolve seven sets of opposites and relate them to current public policy debates. With two exceptions, Bentham's position serves as one polar opposite. Of the reader, the writer asks: For each set of opposites where do you stand? And then, acknowledging your bias, where do we, as a species, currently stand with respect to the following?

3.1 Legislative *vs.* Natural Rights

3.2 Male *vs.* Female

3.3 Mechanical *vs.* Biological

3.4 Producerism *vs.* Consumerism

3.5 Science *vs.* Technology (Design)

3.6 Surveillance *vs.* Privacy

3.7 Wealth *vs.* Poverty

**3.1 Legislative** v*s.* **Natural Rights**

Legislative *vs.* Natural Rights is the subject of current public policy debate about corporate personality and human rights specifically in the United States. Under Anglosphere Common Law & Equity, Legal Persons (bodies corporate) and Natural Persons (flesh and blood human beings) essentially enjoy the same rights. In the constitutional monarchies of the British Commonwealth this legal fiction flows from the foundational concept of the Crown. The State is thus fictionally represented as the monarch, a human personality.

In the USA equitable treatment of Legal and Natural Persons began with the 1886 decision in *Santa Clara County vs. the Southern Pacific Railway*. Until then corporations were limited to the functions and States for which and in which they were chartered. In this case the railway successfully invoked the 14th Amendment of the USA Constitution intended to protect former slaves from discrimination (Nace 2005). Subsequent court cases followed including in 2010 *Citizens United* in which the Supreme Court extended freedom of expression guaranteed by the 1st Amendment to corporations as 'persons'. This decision effectively squashed

federal political fund raising limitations on corporations. In 2013, *Hobby Lobby,* a privately owned corporation used the *Citizens United* decision successfully to argue before the Court of Appeals that freedom of religious expression is similarly protected under the 1st Amendment. The intent was to block the *Affordable Care Act* from requiring the firm to pay insurance premiums for certain types of contraception. The Supreme Court will take up the case. As John Dewey noted "for the purposes of law the conception of 'person' is a legal conception; put roughly, 'person' signifies what law makes it signify" (1926).

There are in fact two secular views regarding the root of legal rights. The first, held by Bentham, is legislative omnicompetence. This holds that all rights originate with legislative action and, accordingly, all rights can be abrogated by such action. This is the assumption in the Anglosphere where Common Law & Equity rule. The second is that some rights are natural, in at least a normative sense, and transcend legislative action. This is the assumption where the European Civil Code rules – essentially the non-English-speaking world.

Under the European Civil Code, Legal and Natural Persons do not enjoy the same rights especially intellectual property rights. A created work is considered an extension of a human personality. As such it is subject to imprescriptible moral rights. In effect, they are human rights in the Natural Rights tradition.

In his anonymous 1776 *Fragments on Government* Bentham criticized Blackstone's concept of Law rejecting Natural Law as 'an abuse of language'. This was, of course, the same year that Adam Smith published the *Wealth of Nations* and the American Revolution began. Then in 1791 in his *Anarchical Fallacies,* a commentary on the French Revolution's *Declaration of the Rights of Man and the Citizen*, he noted "Natural rights is simple nonsense; natural and imprescriptible rights, nonsense upon stilts…" And in the *Constitutional Code* of 1830 he rejected the Bills of Rights as useful only as a check on non-democratic governments. He rejected it as limiting "legislative omnicompetence… in contradiction to the greatest happiness principle" (Peardon 1951).

In this regard Canada's *Charter of Rights and Freedoms* appears in the popular mind rooted in Natural Rights but in fact it is subject to a 'notwithstanding' clause. This means that notwithstanding any rights recognized under the Charter a majority in Parliament or a provincial legislature can abrogate them and the courts cannot intervene. In effect the royal prerogative to obey or disobey the Common Law once enjoyed by the monarch has been progressively assumed by Parliament.

In the U.K., Bentham's legislative omnicompetence provided a distinct English road to democracy. Given the Republican Revolutions no doctrine tainted by Natural Rights could win British public approval. The path to reform could not

be a Social Contract, Natural Rights, Rights of Man or Liberty, Fraternity and Equality. Benthamism, *a.k.a.,* Utilitarianism, provided the necessary rationale.

In the U.S., by contrast, the *Declaration of Independence* and the subsequent *Constitution* are both rooted in Natural Rights – Life, Liberty and the Pursuit of Happiness. Nonetheless after the Revolution the U.S.A. retained English Common Law & Equity with associated precedents and biases against Natural Rights. Perversely, Bentham's greatest good for the greatest number was spuriously used in America to justify slavery, the fate of which was determined by the Civil War. In both Nation-States, however, Bentham effectively downgraded Natural Rights.

Nonetheless at the international level Natural Rights are recognized, for example, in the United Nations' *Universal Declaration of Human Rights* and the Court of International Justice. Their effective enforcement, of course, is another question. On the one hand this reflects the dominance of the European Civil Code tradition in most non-English-speaking countries. This tradition is firmly rooted in Natural Rights. Such rights reflect, at a minimum, normative values or cultural aspirations that legislative omnicomptenece ignores at its revolutionary peril.

## 3.2 Male *vs.* Female

Male *vs.* Female is the subject of global debate about women's rights. In ancient Rome *pater* had the power of life or death over wife, children and slaves. It took the West until the 1900's to recognize women as 'natural persons' with the right to vote rather than 'things' specifically chattel, *i.e.,* moveable property belonging to a male. While the abortion debate continues centering on a woman's rights over her own body, the overall historic change is revolutionary. Arguably it is on a par with the Agricultural and Industrial Revolutions opening a new chapter in the life of humanity. For his part Bentham believed in the full equality of women as sentient, rational beings. This is reflected in the policy of the university he inspired and in which he sits today – University College London. It was the first in the United Kingdom to admit non-Anglicans, non-males and non-whites.

Alas, elsewhere in the world women remain subjugated to religious commandments, *e.g*., under Islamic Sharia Law a woman's evidence counts for half that of a man's. Arguably the ultimate cause of the 9/11 attack was fundamentalist Islam's rejection of equal rights for women.

The question of Male *vs.* Female, however, has become increasingly complicated due to findings in the genetic, neurological and endocrinal medical sciences. Elementary biology teaches us that a female has two X chromosomes (XX) and a male has one X and one Y (XY). It is immediately obvious that a male is in fact half female with an X chromosome. This is one reason males have nipples even though they do not breast feed infants. Genetic science, however, has also identified females with triple X chromosomes (XXX), about 1 in 1000 while it

has also identified males with a double Y (XYY). This means, at the chromosomal level, there are at least four physical sexes.

Endocrinal science (the science of hormones) has further complicated the question finding that both sets of reproductive organs (ovaries and testes) begin to develop in both XX and XY foetuses. Take an XY embryo, *i.e.,* a genetic male. If the mother is traumatized early in pregnancy adrenaline rises and testosterone falls, male organs are absorbed and female organs develop. We have a genetic male but a biological, reproductive female.

If there is no early trauma then female organs are absorbed and male organs develop. If, however, there is trauma later in pregnancy adrenaline rises, testosterone falls and the male sex centre in the brain (identified by neurological science) does not develop and we have a genetic, reproductive male but a neuropsychological female.

It was this neurological finding that led the East German secret police, the *Stasi*, to intervene in cases when traumatized mothers tested positive by amniocentesis to carrying an XY embryo. Such women were given testosterone to ensure a 'real' male baby, an *Ubermensch*. Similarly, the courts in the United States have ruled that one born with a specific condition – black, white, male or female, gay or straight – cannot be discriminated against because of that condition. It is not a question of choice but of Nature. They have accepted the endocrinal evidence and recognized homosexual rights including the right to marry.

If there is no early or late trauma then male organs and the sex centre develop producing a genetic, biological and psychological male. This means, of course, that there are at least 3 distinct physical types of males.

If we take a genetically female XX embryo both sets of organs begin to develop. Testosterone, however, is produced not only in the testes but also in the skin and adrenal cortex. Some women have very high levels of testosterone which can cause the female organs in embryo to be absorbed and male organs to develop. We thus have a genetic female but a biological, reproductive male. Normally, of course, male organs are absorbed and female organs develop leaving us with an XX female. Proof is evident in the hermaphrodite who develops both sets of organs – male and female. This means, of course, that there are at least 3 distinct physical female types.

In summary, there are at least 4 chromosomal sexes – two female (XX, XXX) and two male (XY, XYY) - and six endocrinal sexes – three female (XX female, XX male and the hermaphrodite) – and three male (XY female, XY male without a male sex centre and XY with the sex centre). These findings are not academic. When one adds acculturation to the mix, *e.g.,* an XY male raised as a girl, then sexuality becomes even more complicated. It is clear, however, that Bentham would accept such scientific evidence, recognize the rights of all twelve

physical sexes but would also probably approve of testosterone injections to ensure a 'real' male baby, an *Ubermensch*.

### 3.3 Mechanical v*s.* Biological

For millennia there has been debate about the nature of human society and its constituents. Is it a machine or an organism? This debate includes the nature of the corporation and Nation-State. Bentham stands at one end – mechanical. He aspired, like many Enlightenment thinkers, to be the Newton of moral philosophy. His felicitous calculus was modelled on Newton's calculus of motion. His heirs succeeded in marrying them and birthing microeconomics and market theory. An example illustrates the connexion.

The production function of a firm - when at least one factor of production (usually capital plant and equipment) is held constant in a two factor world - forms an S-shaped graph as labour is added to fixed capital. It shows initially increasing marginal product then eventually diminishing marginal product and finally negative marginal product, *i.e.,* the additional output gained by adding a worker. The graph also describes the flight of a cannonball arguably the root of the calculus of motion. Galileo's experiment dropping two different sized cannonballs from the Leaning Tower of Pisa was likely funded by the military-industrial complex of his day. And let us not forget the vector calculus of the engineer.

In a mechanical world there are replaceable parts, gears, levers, pulleys, buttons and workers. Bentham's radical egalitarianism viewed people in this way. Ideally children were to be taken at birth from their parents and raised in State crèches so everyone's customs, traditions and taste would eventually become the same. Thus for Bentham it is Nurture not Nature that makes us what we are. This is one reason why microeconomics assumes "*De Gustibus Non Est Disputandum*", *i.e.,* taste is not disputable (Stigler & Becker 1977). For Bentham, society was a clockwork responding to the sovereign rulers of the State –Pleasure and Pain.

A year before Bentham published *Anarchical Fallacies* in 1791, the philosopher Immanuel Kant (1724–1804) formulated the biological metaphor. Among his many contributions Kant established, as a law of nature, that the formal notion of the *if-then* relationship corresponds to the concept of cause and effect and that there is a single direction of causality, *i.e.,* Time's Arrow only moves from cause to effect, from past to present to future (Grene & Depew 2004, 93-4). This law, however, was limited by Kant to matter defined as lifeless stuff (objects) pushed or pulled by measurable forces through space/time, *i.e.,* mechanics. This limitation was required because it was apparent to Kant that material and efficient causes (cause and effect) were insufficient to explain living things, *i.e.,* biology. Through his questioning he at least partially liberated biology from theology as Robert Boyle had liberated physics a century before.

Kant addressed the question in his *Critique of Judgement* (1790) divided into two parts. The first is the "Critique of Aesthetic Judgment"; the second, the "Critique of Teleological Judgment". The ordering is important. While works of technological intelligence, or artifacts, have purpose, works of aesthetic intelligence have purposiveness or meaningfulness but no purpose, *i.e.,* no utilitarian function.

> In aesthetic judgments, and especially in judgments of the beautiful, purposiveness is ascribed without reference to purposes, and indeed in their complete absence. This prepares the way for Kant's ascription of purposiveness to living things, where purposes and purposiveness do not appear quite as separable. (Grene & Depew 2004, 101)

There were three things about living things that demonstrate teleological or final causes are at play: ecology, metabolism and ontogeny. <u>First</u>, Kant saw that the web of mutually supportive relationships between various species of plants and animals constituting an ecological community were so complex that linear 'if-then' causality is insufficient to explain it. <u>Second</u>, in the metabolism of living things "each part is reciprocally means and end to every other. This involves a mutual dependence and simultaneity that is difficult to reconcile with ordinary causality" (Grene & Depew 2004, 94). <u>Third</u>, in ontogeny, or development of the individual, the future mature end-state appears to guide successive stages of development. This appears a case of formal and final causes at work*, a.k.a.,* teleology.

Having found teleological processes in living things, Kant was concerned to distinguish between Design and designer. To do so he contrasted machines (works of technological intelligence) from living things. Quite simply, parts of a machine are put together by people and parts do not bring other parts into existence, *i.e.,* a machine is not a self-organizing entity. By contrast:

> the parts of an organism are so mutually dependent and so tightly connected with the whole that it is difficult to say what, if anything, should come first and what should come later, as we must do when we design, build, and analyze ("reverse engineer") artefacts. In this respect, Kant says that organisms are - or at least must be grasped by us as - self-formative, bootstrapping operations, in which each part appears to be the joint product of all the other parts. This is what Kant means when he says that an organism is "a product of nature in which everything is both an end and also a means" and in which the parts are "reciprocally cause and effect of [one another'sl form." (Grene & Depew 2004, 98-99)

For Kant artifacts, machines and all other works of technological intelligence are finally caused by human purpose. Living things, however, do not require human or divine purpose but rather reflect a 'natural purpose'. Kant called

this form of causality purposiveness. He was so convinced of the inherent complexity of living things that he claimed:

> it is absurd for human beings even to attempt it, or to hope that perhaps some day another Newton might arise who would explain to us, in terms of natural laws [cause and effect] unordered by any intention, how even a mere blade of grass is produced. (quoted in Grene & Depew 2004, 94).

Following the discovery of DNA in the 1950s, however, a new mathematics developed – bioinformatics. With it we, as a species, now have a technology to directly affect (or infect) living things with human purpose, *i.e.,* biotechnology. In effect, the new science of genomics combines human and natural purpose. One implication is that "it has become possible to think that biology can, for the first time, join physics and chemistry as a 'technoscience'" (Grene & Depew 2004, 345).

This transition is being fuelled by the changing marginal cost of new knowledge in physics versus biology. To gain additional knowledge in physics requires ever more expensive instruments. The Large Hadron Collider (LHC) at CERN cost some $6 billion to find the Higgs particle while the cost of genetic sequencing is falling at an accelerating rate. Thus sequencing cost per human genome fell from $100 million in 2001 to $10,000 in 2011. Put another way the marginal cost of new knowledge is falling in biology while rising in physics.

## 3.4 Producerism *vs.* Consumerism

Current debate about the consumer society and its wastefulness contrasts with what I call the 'producerism' of Bentham. Bentham's radical egalitarianism found expression in the Marginalist Revolution of Economics through Perfect Competition, the market equivalent of Marx's Perfect Communism. Ironically both share the same end state – no government. The 'withering away of the State', for Marx, results from Perfect Communism providing each individual according to one's need. Perfect Competition, on the other hand, exists when there are many, many competitors and no one – consumer or producer - exercises 'market power' while each – consumer and producer – retain their full economic surplus from exchange. If these conditions are meet there is no reason for government intervention*, a.k.a.,* no government. Of course the first assumes an unrealistic degree of *selflessness* and the second unrealistic *selfishness* or self-interest.

The precepts of Perfect Competition would require us all to wear Mao suits and drive black model T-Fords. Standardization at the lowest long run average cost per unit is the objective of Perfect Competition. Bentham's egalitarian objective was to be facilitated by the compulsory education of the young, ideally, raised in State crèches so everyone's customs, traditions and tastes would become the same. It is important to remember that introduction of compulsory elementary

education was a Benthamite ideal based on the premise that parents could not be trusted to educate their children in the children's best interest.

The shift from standardization to a consumer differentiated society is captured in the words of Alfred Marshall, father of the standard model of market economics:

> … the development of the artistic faculties of the people is in itself an aim of the very highest importance, and is becoming a chief factor of industrial efficiency.... Increasingly wealth is enabling people to buy things of all kinds to suit the fancy, with but a secondary regard to their powers of wearing; so that in all kinds of clothing and furniture it is every day more true that it is the pattern which sells the things (Marshall 1920 [1890], 177-8).

Over the past decades, branding has evolved. In the 1950s, a Brand was made by a product's claim to uniqueness. The idea might be utilitarian: trustworthy, effective, a bargain. By the 1980s, the idea was the organisation behind the product, *e.g.,* The Body Shop ®. In the 1990s, a Brand created a culture around itself. It wasn't the product but the right label – Apple, Nike, *et al*. Today a successful Brand persuades people to consume an idea not just a product. A Brand becomes shorthand for identity. Think sneakers.

It has been argued that mainstream Branding uses large, brash logos turning a consumer into a walking advertisement and appealing to the lowest common denominator. The Mainstream and Counterculture, however, have long since split into a multiverse of mainstreams, counter-, sub- and counter-sub-cultures. In broadcasting it is called 'narrowcasting'. Here the consumer wants novelty and here are emerging 'minibrands' or Underground Brands in major capitals around the world – New York, Tokyo, London, Paris, Madrid, Seoul, Shanghai and Hong Kong. Think microbreweries.

Brands are creative expression of a culture or lifestyle. The idea is to generate 'meaning' beyond commercial success. Firms, instead of attaching ideas to products, create products to express an idea. Nonetheless, to remain a going concerning customers must come back again and again. In many ways, however, the consumer has become a living artwork choosing styles and sub-cultural symbols and images to define individuality. From an ecological perspective there is, however, a deeper, darker question. Can we as a species continue to grow both in numbers and individuation while conserving global biodiversity?

### 3.5 Science *vs.* Technology (Design)

In popular debate Science and Technology are not opposed but rather confabulated. Price (1965) concluded, however, that the causal relationship is that Science relies on the previous generation of Technology while Technology relies

on the previous generation of Science. Nonetheless, the two remain methodological opposites.

Since the beginning of Western civilization, logic has been accepted as the preferred path to knowledge (Dorter 1990, 37). It distances us from our passions; it frees us from the distracting world of sensation and emotion. In the hands of the Romans the Greek *logos* – logic - became 'reason' derived from the Latin 'ratio' as in to calculate (OED, *reason*, n 1). In this sense one can speak of 'calculatory rationalism'. And we derive Science from the Latin *scire* "to know" which, in turn, derives from *scindere* "to split" (MWO). Science today is accepted as the epitome of reason deriving knowledge by splitting or reducing a question into smaller and smaller parts or elements until a fundamental unit or force is revealed, *e.g.*, Newton's gravity.

Until innovation of the experimental instrumental scientific method in the 17th century, however, splitting and reducing was restricted to words. The critical difference between ancient and modern Science, leaving aside advances in mathematics, is the scientific instrument forcing Nature to reveal her secrets. Idhe calls it 'instrumental realism' (Idhe 1991). It is the design, development and operation of instruments of ever increasing sensitivity that has allowed humanity to pierce the veil of Nature, of appearances, and establish human dominion. They provide what Price (1984, 9) quoting Galileo calls 'artificial revelation'. Such instruments are not verbal constructs; they are tangible works of technological intelligence that measure and manipulate Matter/Energy. They are 'tooled' knowledge. The 17th and 18th century fascination with instrumentation is captured in Umberto Eco's 1994 novel *The Island of the Day Before*.

The word 'technology' itself, with its modern meaning, entered the English language only in 1859 deriving from the Greek *techne* meaning Art and *logos* meaning Reason, *i.e.*, reasoned art. The Oxford English Dictionary says it was re-coined at that time by Sir Richard Francis Burton (OED, *technology*, 1 b), Victorian explorer and translator of the *Kama Sutra* (1883), the *Arabian Nights* (1885) and the *Perfumed Garden* (1886). *Techne*, however, dates back to the ancient Greeks for whom it signified all the Mechanical Arts excepting medicine and music. As such, they were suitable only for the lower classes not the upper class that practiced the Liberal Arts of 'free' men, *a.k.a.,* independently wealthy, not needing to work.

Accordingly, the instrumentation that supported the Scientific Revolution of the 17th century was not Technology but rather the result of the Design Revolution of the 15th century. This revolution was the result of craftsmen, not scholars (Zilsel 1945). In fact the Scientific Revolution arguably began with Sir Francis Bacon in his 1605 *Of the Proficience and Advancement of Learning Divine and Humane*

calling scholars down from their ivory towers to the craft workshops where the instruments to put Nature to the question were being developed.

With the discovery (or re-discovery) of perspective in the visual arts during the Renaissance, a new word arose – design.  It derives from the Latin *designare* "to mark out, trace out, denote by some indication, contrive, devise, appoint to an office" (OED, *designate*, v).   In Renaissance Italy 'design' assumed its contemporary aesthetic sense of geometric composition (Aldrich 1969) as distinct from its technical sense of planning with a purpose.  In French, these two are expressed by separate words: "*dessein* meaning 'purpose, plan'; and, *dessin* meaning 'design in art'" (OED, *design*, n, etymology).

The word 'design' itself entered the English language only in 1588 followed fifteen years later in 1603 by 'causality' (OED, *causality*, 1), a word at the heart of the Scientific Revolution and the conceptual foundation of the experimental method.  In English, however, both French senses are combined in the single word 'design'.  What they share is *intent*, specifically the intent to make as opposed to reduce.  Design involves making patterns or function out of Matter/Energy and/or Imagination, *e.g.*, ships of clouds sailing across the living skies (Aldrich 1969, 381).  Critically, engineers use the word design "in framing membership criteria for the professional grades of engineering societies" (Layton 1974, 37).

In fact, Martin Heidegger argues the essence of the contemporary world is *objectivity* resulting from the triumph of 'representation' in the arts since the Renaissance and in the sciences since Descartes in the 17th century.  In effect, it is our ability to model or imitate Nature, especially using mathematics or in the case of the visual arts, geometry, that brings certainty of knowledge and perspective.  Through representation everything in and of the world is brought before us from the perspective of object.  Such representation is, of course, the product of Design.  The result, according to Heidegger, is that we live in "The Age of the World Picture" (Heidegger 1938).

If Science involves reductionism then Design including Technology involves constructionism, putting things together, not taking them apart.  For Heidegger, later in his career, Technology became the enframing and enabling of Nature to serve human purpose (Heidegger 1957).   The difference between Technology and Science was made clear by Michael Polanyi :

> In fact, a machine can be smashed and the laws of physics and chemistry will go on operating unfailingly in the parts remaining after the machine ceases to exist.  Engineering principles create the structure of the machine which harnesses the laws of physics and chemistry for the purposes the machine is designed to serve.  Physics and chemistry cannot reveal the practical principles of design or co-ordination which are the structure of the machine. (Polanyi 1970)

What is important is that physical 'technology' is a biological instinct. Organisms do not just adapt to their environment; they adapt the environment to their needs, *e.g.,* the ant, bee and beaver. Essentially this involves constructing new environmental invariants, *e.g.,* colonies, hives or lodges. Of all organisms on Earth, humanity has had the greatest success in structuring its environment. Tools, specifically the tooled knowledge they contain, are the means by which we animate and organize Nature. They move, shape and change it to suit human purpose. In fact, before art, culture or language, there was tool making. Tools provide *primae facia* evidence of the arrival of our species: artifacts left by our first ancestor, *homo habilis* or the 'handy man', some two and a half million years ago (Schuster 1997).

With the emergence of new synthetic sciences, however, such as ecology and climate change, a new problem has arisen. Traditional reductive science relies on controlled experimental conditions while the new sciences are 'real world' integrative and inter-disciplinary. They are 'synthetic sciences'. As in the 'soft' or human sciences experimental testing is limited. Modeling requires evidence of varying quality drawn from widely different sub-disciplines within physics, chemistry and biology. The interdisciplinary correlation of potentially incommensurate findings across disciplinary borders remains, in my opinion, problematic.

Pure reductionism, however, still characterizes traditional Physics and, to a lesser degree, Chemistry. These deal with the 'geosphere', *i.e.*, the world of inanimate matter and mechanical motion, not the biosphere of living things or the noösphere of human thought including *Art, Science & Technology* (Chartrand 2007). Much more will be said in my forthcoming article: The Metaphysics of Technology.

And where did Bentham stand between Science and Technology? Right in the middle. Like a scientist he deduced the lowest common denominator of human nature (pleasure/pain) measured by the utile with which he believed he could calculate the greatest good for the greatest number. With such calculations he became an architect of law and human institutions around the world.

## 3.6 Surveillance *vs.* Privacy

A current public debate is boiling around the world concerning the trade-off between surveillance and privacy. This debate involves the public as well as the commercial sector, *e.g.,* exploitation of user information by companies like Amazon, Facebook, Google and Microsoft. Bentham clearly lays at the Surveillance pole of this dichotomy. Among other things he called for collection of a wide range of social statistics including weather, deaths, marriages, births, arrivals at maturity and insanity. Many of his suggestions were incorporated in the *Marriage Act* of 1836 (Peardon 1951).

More important from his perspective, however, was the Panopticon. In an age before electronic surveillance only physical architecture could provide the means. Bentham greatest disappointment was the failure of the U.K. government to adopt his Panoptican design for institutions where surveillance was important including hospitals, schools, workhouses, lunatic asylums and prisons. In essence, the Panopticon was a central tower from which wings extended and at each level of the central tower an observer can see into each room on that floor.

> Bentham once suggested… that "metaphysics" might be made an experimental science by applying his "inspection-house principle" to the training of children. That plan would enable the instructor to determine what sensible objects, conversation, books should have part in forming the child's mind. Then "The geneology of each observable idea might be traced through all its degrees with the utmost nicety: the parent stocks being all known and numbered" (quoted from *The Works of Jeremey Bentham*, vol. iv, p. 65; quoted in Mitchell 1918, 177, n1).

Today we live in an age of electronic surveillance. Closed circuit television (CCTV) blankets most public places. Google and others track our online viewing and shopping habits for commercial purposes. The National Security Agency (NSA) of the United States and similar agencies in other countries monitor all our telephonic and internet activities. Bentham would be pleased. While current law and morality prohibits the use of such technology for social scientific research the technology does exist whereby the "geneology of each observable idea might be traced through all its degrees with the utmost nicety".

### 3.7 Wealth *vs.* Poverty

A current public debate is raging concerning growing income inequality. With respect to wealth and poverty Bentham's position was firmly in the middle. He knew full well of what his economic successors would call 'diminishing marginal utility' including of money income and wealth (stock of assets). If the pleasure/pain of a pauper is equal to that of a prince then an additional $1000 generates more happiness to the pauper than to the prince. The same holds for wealth. "Every time he began thinking about money measures of feeling he was checked by the diminishing utility of wealth" (Mitchell 1918, 170).

As a pragmatic political reformer, the opening terror of the French Revolution, its Napoleonic second act and its denouement -- the reactionary Holy Alliance -- restrained Bentham from advocating the logical political conclusions of his radical egalitarianism, *i.e.* redistribution of wealth and property.

> Another way in which he influenced the young economists around him was through his passionate desire for security. He was indeed an ardent reformer. He was an enemy of all artificial distinctions between different classes of men; he declared with emphasis that any one man's happiness was

as important as any other's and that the aim of all action should be to increase the sum total of happiness, he admitted that other things being equal, this sum total would be greater the more equally wealth was distributed. Nevertheless so full was his mind of the terror of the French Revolution, and so great were the evils which he attributed to the smallest attack on security that, daring analyst as he was, he felt himself and fostered in his disciples an almost superstitious reverence for the existing institutions of private property (Marshall 1920, 628-9).

If it were not for the Terror of the French Revolution the Anglosphere might have developed in a Marxian way: 'each according to one's needs'. To repeat, this is the implication of Keynes' conclusion:

I do now regard that as the worm which has been gnawing at the insides of modern civilization and is responsible for its present moral decay. We used to regard the Christians as the enemy, because they appeared as the representatives of tradition, convention and hocus-pocus. In truth, it was the Benthamite calculus, based on an over-valuation of the economic criterion, which was destroying the quality of the popular Ideal. Moreover, it was this escape from Bentham… which has served to protect the whole lot of us from the final *reductio ad absurdum* of Benthamism known as Marxism (Keynes 1949, 96-7).

## 4.0 Conclusion
### *Back to the Garden*
In assessing the legacy of Jeremy Bentham we can say today of:

1. Legislative *vs*. Natural Rights: Bentham's legislative omnicompetence still dominates the Anglosphere where Common Law and Equity rule and Natural and Legal Persons essentially enjoy the same rights. Meanwhile Natural Rights remains dominant in Civil Code countries and at the international level where the Natural Person enjoys certain rights not available to Legal Persons;

2. Male *vs*. Female: Bentham's equality of the sexes has become dominant in both the First World of developed democracies and the authoritarian remains of the Communist Second World but sexual apartheid and discrimination remain common in the Third World of the South and the Fourth World of aboriginal peoples;

3. Mechanical *vs*. Biological: Bentham's societal version of Newton's clockwork universe survives as a societal metaphor but is increasingly displaced by organic concepts like networks and webs. This trend is fueled by the rapidly increasing cost/effectiveness of biotechnology;

4. Producerism *vs*. Consumerism: Bentham's economics of producing standardized goods and services at lowest long-run average cost per unit

consumed by the like-educated sharing common tastes did not emerge except in the now defunct Communist command economies of the Second World. Rather the willingness to pay extra for the brand, style or taste now defines the individuated consumer and/or his or her sub-culture (narrowcast market niches, segments or shares) and has become the foundation of the global consumer economy;

5. Science *vs.* Technology (Design): Bentham, having deduced the utile of pleasure/pain as the ultimate unit or atom of human behaviour, adopted an architect-like role applying his 'scientific' findings to the design of legal and social institutions of governance including public buildings, specifically the Panopticon. Application of the 'greatest good for the greatest number" in the human-made world where the Sciences of the Artificial (Simon 1969) reign was, however, inevitably imperfect if not impossible. Science has yet to find the utile and Technology has therefore been unable to design a utile meter. Yet Bentham's reification of happiness as money – its presence brings pleasure; its absence brings pain – continues to drive global society, not just the economy;

6. Surveillance *vs.* Privacy: Bentham would be at home in today's surveillance society. Observing all of human life was his ambition. Today, however, it involves both public and commercial surveillance. In the U.K. it is said there are more CCTV (closed circuit TV) cameras than people. Every major public venue has become a Panoptican. The internet and its ubiquitous presence in our lives generate teraflops of consumer related data daily building 'big data' to be 'mined' by commercial interests; and,

7. Wealth *vs*. Poverty: Fear of revolutionary terror stopped Bentham from following his own logic to its inevitable conclusion – the diminishing marginal utility of money and wealth. Ten thousand dollars to a pauper generates more utiles than to a billionaire. If the greatest good for the greatest number is to be achieved then income redistribution of some order follows from Bentham's logic.

Before closing, however, I must raise up one last set of opposites to assess Bentham's legacy. It can be expressed as either Science *vs.* Religion or Doubt *vs.* Dogmatism. The word Science derives from the Latin meaning 'splitting'*, i.e.,* reductionism. Religion, on the other hand, derives from the Latin *religio* meaning 'to link back'. Science seeks the new while Religion links back to old knowledge. With respect to Doubt *vs*. Dogmatism, Michael Polanyi noted:

> The process of philosophic and scientific enlightenment has shaken the stability of beliefs held explicitly as articles of faith. To assert any belief

uncritically has come to be regarded as an offence against reason.  We feel in it the danger of obscurantism and the menace of an arbitrary restriction of free thought.  Against these evils of dogmatism we protect ourselves by upholding the principle of doubt which rejects any open affirmation of faith. For the past three centuries the principle of doubt has been continuously at work on the elimination of all uncritical affirmations of faith (Polanyi 1952, 217).

In his April 25, 2005 'State of the Union' address to the Duma, Vladimir Putin, President of the Russian Federation, called the collapse of the Soviet Union in 1989 "the greatest geopolitical catastrophe" of the twentieth century (BBC April 25, 2005).  Whether true or not, this event, accompanied by the nearly synchronistic conversion of Communist China to market economics marked the end of the Market/Marx Wars which had raged and divided the world for almost a century and a half beginning with publication of the *Communist Manifesto* by Karl Marx and Frederick Engels in 1848.

Furthermore, no matter the faults of Marxism it is a secular, materialistic philosophy that actively seeks to displace religious faith - 'the opium of the masses' - by Science.  However, with the collapse of Communism, together with growing doubts about market economics,

> [i]n much of the world religion has moved in to fill this gap, often in the form of movements that are labeled "fundamentalist." Such movements are found in Western Christianity, Judaism, Buddhism and Hinduism, as well as in Islam. In most countries and most religions the people active in fundamentalist movements are young, college-educated, middle-class technicians, professionals and business persons.  The "unsecularization of the world," George Weigel has remarked, "is one of the dominant social facts of life in the late twentieth century."  The revival of religion, "la revanche de Dieu," as Gilles Kepel labeled it, provides a basis for identity and commitment that transcends national boundaries and unites civilizations (Huntington 1993, 6-7).

In this regard, it is important to note President Putin's increasing use of the Russian Orthodox Church with its tradition of Caesarpapism to legitimize the rise of his new Russia and Moscow as the third Rome.  Even in the United States more Americans believe in the Devil (68%) than in evolution (28%) (Kristof 2003).  Of this global dilemma, Carl Jung wrote:

> The rupture between faith and knowledge is a symptom of the split consciousness which is so characteristic of the mental disorder of our day. It is as if two different persons were making statements about the same thing, each from his own point of view, or as if one person in two different frames of mind were sketching a picture of his experience.  If for "person" we substitute "modern society," it is evident that the latter is suffering from a mental dissociation, *i.e.,* a neurotic disturbance.  In view of this, it does

not help matters at all if one party pulls obstinately to the right and the other to the left.  (Jung [1956] 1970, 285)

As noted in Part I, the Scientific Revolution of the 17th century was made possible by the Latitudinalist Compromise in the Church of England.  When God made the universe he set the laws of Nature in motion and withdrew from the mechanical world leaving only the human soul and angels subject to divine intervention.  This compromise permitted the rise of physics and chemistry but severely limited the biological sciences.  This inhibition is apparent in the work of Georges-Louis Leclerc, Comte de Buffon (1707-1788) considered the "father of anthropology."  In his *Histoire naturelle de l'homme* (1749),

> Buffon was confident that his study of human beings as natural entities - geographically dispersed, and open in their differences to the influence of climate and other aspects of their environments - would be protected from theological and philosophical objections because he carefully sequestered man's "moral" characteristics - the "metaphysical" attributes of reason, free will, and so forth - from his natural history of the species.  It is true that the masters of the Sorbonne lodged their usual complaints, delaying the publication of the *Histoire naturelle* until Buffon judiciously affirmed his belief in "all that is told [in the Scriptures]"...  Nonetheless, the enduring influence of the Cartesian separation of mind from matter now made it possible, ironically enough, to study human beings in everything *but* their rational life, to study them, that is to say, as animals among other animals, and thereby to pose a question that is still with us: whether man's "moral" characteristics can be reduced to, or shown to emerge from, his biological nature (Grene & Depew 2004, 323-4).

This was followed, of course, by ongoing religious resistance to the evolutionary findings of Charles Darwin (1809-1882).  With the emergence in the mid-20th century of biology as a techno-science using bioinformatics as its mathematical base, the tension between Science and Religion is growing yet again.  Thus the three great monotheistic religions – Judaism, Christianity and Islam – share the five books of Moses including *Genesis* in which humanity is expelled from the Garden of Eden because:

> … the Lord God said, Behold, the man is become one of us, to know good and evil: and now, lest he put forth his hand, and take also of the tree of life, and eat, and live forever…" (Genesis 3.22)

The world's religious have had little problem accepting the fruits of physics and chemistry such as fundamentalist Islam professing a 6th century moral code while using 21st technology to win its way.  However, a new scientific revolution is underway; a revolution that threatens to sweep away the last remnants of the Latitudinalist Compromise.  Arguably, with biotechnology humanity has returned to the Garden and is reaching forth its hand to eat of the tree of life and live

forever.  Our ability to inject living things (including humanity itself) with human purpose means humanity has assumed responsibility for its own evolution. Bentham would be happy but can the religious accept God begins where Science ends given Science is a never ending story of dogma being displaced by doubt; of dissipating our cloud of unknowing (Merton 1967); pushing ever inward and outward to where no one has gone before.  The selective choice of which biotechnologies to adopt will vary across cultures/religions.  Adoption or rejection may bless or doom the selecting culture in the 21$^{st}$ century (Chartrand 2003) as has been the case in the past.  Time will tell.

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Inspired by:
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