Humanism Economics: A Brief History of Human Intelligence

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For my beloved wife Donna
Who is the center of my circle of love

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PREFACE AND ACKNOWLEDGEMENTS

> "Upon whatever we suppose that our moral facilities are founded, whether upon a certain modification of reason, upon an original instinct, called a moral sense, or upon other principles of our nature, it cannot be doubted that they are given us for the direction of our conduct in this life….the viceregents of God within us never fail to punish the violations of them [the moral laws], by the torments of inward shame, and self-condemnation, and on the contrary, always reward obedience and tranquility of mind, with contentment and self-satisfaction"
> Adam Smith in *The Theory of Moral Sentiments*

Before he published in 1776 *The Wealth of Nations* Adam Smith published an equally important treatise – at least it was perceived in that light at the time he lived – titled *The Theory of Moral Sentiments*. In it he struggled to define conscience. For want of a better characterization he hit upon the idea of "the God within us." In formulating the possible reasons why this moral sense is intrinsic to humans he hedged his bets. As a committed Enlightenment philosopher, he did think reason might have something to do with it. Still he had his doubts that reason alone could explain ethical behavior. He noted that pure reason – the calculus of costs compared to benefits - had to tempered by a "certain modification" to become ethical reasoning. With this in mind he turned to two possible alternatives: psychology (the instincts) or some other as yet unnamed element in our natures.

Having discussed the importance of a moral compass in guiding human behavior Smith went on the extoll the "invisible hand" that the Deity, who planted the moral sense in our mortal frames, wisely laid out as a rule for guiding economic, social, and political behavior.

Strip away the Deity from his characterization – something humanists do – what we are left with is the conjunction of ethics with economic cost/benefit rationality. It is the burden of this book to explain why this came upon historically, what are the implications of this approach for understanding

economic activity, and why this offers a plausible alternative to mainstream Neoclassical economic theory.

I am stubborn person. In my bones I probably felt queasy about standard Neoclassical economics from the word go. Still, it took a veritable lifetime as an academic to reach the point where I could articulate this view clearly, throwing caution to the winds, knowing full well that my views will certainly offend my colleagues in the field of economics. So be it! To quote Tom Petty "I won't back down."

So this book deals with serious matters. But believe it or not I have a sense of humor. Despite my limitations as a writer, I have tried to infuse humor into these pages. Call it my temperament, my intrinsic capacity to see tragedy and comedy as one, two faces of the same god Janus. I suspect I imbibed this attitude toward life's ups and downs because I was an amateur cartoonist as a child, doting on Walt Disney characters, Robert Crumb *Zap* tales, and *Mad* magazine. Had I been more talented I would have pursued a career as an illustrator for an underground comic. Perhaps my economics colleagues wish I had done this.

I hope this remark helps explain the rather peculiar organization of this work. Like Chapter One and Chapter Ten, Chapter Six of this book is personal. Ostensibly about other artists and writers it is really about my identity as a humanist thinker for whom a tragic-comedy worldview is deeply embedded. As well it is the hinge on which the entire argument in this volume rests. Chapters Two through Five explain how humanism and market-oriented capitalism emerged in tandem, the Enlightenment the culmination of this process. Chapter Six dwells on the tragedy of the French Revolution as it reviewed the limitations of the vaunted Enlightenment project. Using Goya to illustrate this theme I set the stage for the second half of the book that dwells upon the consequences of this great flawed experiment in human affairs. There is both comedy and tragedy in this tale. Given the five decades of thinking that has found culmination in this book I suppose it is not surprising I have many people, both alive and dead, for advice, assistance, and encouragement to acknowledge here. My short list includes the following: George Akerlof, Carlo Cipolla, Ansley Coale, Robert Cooter, Jan de Vries, Merwan Engineer, Alexander Field, Robert

Fogel, Alexander Gerschenkron, Gregory Grossman, Akira Hayami, Bent Hansen, Albert Hirschman, S. Ryan Johannson, John Komlos, Simon Kuznets, Kees van Kooten, Ronald Lee, Wassily Leontief, Jack Letiche, Peter Lindert, Donald (aka Deidre) McCloskey, Ryoshin Minami, Yoshiro Miwa, Joel Mokyr, Yoshi-fumi Nakata, Hugh Patrick, Steven Pinker, Mark Ramseyer, Henry Rosovsky, Osamu Saito, Roger Schofield, Tom Smith, Irene Taeuber, Mataji Umemura, and Tony Wrigley.

Being stubborn has its benefits, unfortunately coming at a cost. A stubborn individual is often as not blind to his or her own faults, prone to justifying actions that objectively are riven with hypocrisy or inconsistency, unaware of flaws that corrected would lead to more fruitful outcomes. So be it. To be frank: isn't every tidbit of advice capriciously ignored an act however innocent of betrayal? A prick of regret? An admonishment?

A good example of this author's stubbornness is his decision to seek a publisher invested in academic voice but unwilling to consign a book to research libraries, rather seeking out broader audiences including the informed reader willing to countenance the ruminations of intellectuals who wish to address the body politic at large. With the intent of responding to an invitation from Ethics International Press I conceived of a project – this book – as a contribution to the worthy agenda that the press has advertised on its website. With that in mind I submitted the manuscript, receiving useful advice and ultimately positive evaluation responses from reviewers commissioned by editors Robert Blair and Sarah Palmer at the press. I am grateful to them for their support for this project.

Being stubborn I must confess to sometimes, too often I am afraid, ignoring judicious advice from these individuals, scholars, and editors alike. Which is another way of saying that I take full responsibility for the following pages.

CHAPTER ONE

The Making of a Humanism Economist

"'The child is father to the man'
How can it be? The words are wild.
Suck any sense from that who can:
'The child is the father to the man.'
No: what the poet did write ran,
'The man is father to the child.'
'The child is father to the man!'
How can it be? The words are wild!"
Gerard Manley Hopkins

A death in the family

I commenced pilfering books during the years I was a student at Berkeley High School. Never caught. Carefully shoving volumes under my coat, eyeing the cash register attendants as I exited the store I slowly but surely built up a small library of books that a half center later I have on my bookshelves. Weathered, full of yellow pages, traveling companions as I moved from place to place, from apartment to apartment in Berkeley, from domicile to domicile in Victoria, British Columbia. These volumes included writings of Albert Camus, Sigmund Freud, Fyodor Dostoyevsky, Friedrich Nietzsche, Albert Einstein, and Martin Buber.

Shortly afterwards I abandoned stealing books after I graduated, entering the University of California at Berkeley in 1962. Buy why did I ever so cautiously amble into the paperback lined shelves at the Campus Book Store across from the campus at Berkeley, making my way to the shelving allocated to books assigned to literature or philosophy courses (tags indicating the courses undergraduates and graduate students alike were perusing as they selected their courses for the coming semester before entering the university? And why did I abandon my escapades in crime several years after? More to the point perhaps: why did I select certain books to steal?

It is easy for me to rationalize my behavior in terms of a cost/benefit calculus. I had little income at my disposal during my high school years. However, lacking a job and bored with doing homework, I had an abundance of time. Beneficiary of a scholarship at the University and placed in a position in the campus library system as a work-study student I have some income and less time. One could say this and leave it at that. But it is not true.

I suppose one thing that weighed on my troubled mind in high school was the death of my father, a Professor of Economics on the Berkeley campus. His demise left a void that I could not seem to fill. Was I angry at cruel fate? Did I want to read the books that I wished I could have discussed with him had it not perished? Perhaps. Cognitive dissonance tells us we can live with contradictions, and this would have been a contradiction, albeit one that appeals to me in retrospect as I cogitate on the problem. My father was highly ethical. He never would have approved of stealing. The simple answer about why I behaved as I did is conscience, the presence or absence thereof. Suppose the great majority of individuals did not possess some form of conscience. Then stealing would be rampant. Societies would be compelled to expend great resources on monitoring criminal behavior, attempting to prevent it. As I discovered through my experiments in pilfering books, it is pretty easy to get away with at least low-level crime as it passes under the radar. Imagine how costly it would be – imagine a competitive market equilibrium of the mainstream Economics 101 variety – in which the analysis had to begin with social controls on stealing, the circumvention of market transactions. That we do not worry about such things when we teach basic economic principles is because conscience – and its social imprinting in family upbringing – is important in shaping economic outcomes even if the theory neglects to mention this nagging fact. Which is not to say that a conscience fails to be a fickle friend on occasion. As do most friends from time to time. To my everlasting mortification – dark memories still haunting me – I have hardly buried the knowledge that my conscience has been less than reliable.

Returning to the way my identity was formed by the environment I thrived in as a child. I grew up in a secular household. This was important and it stemmed from the orientation of my parents. My father grew up in Orthodox Jewish household in San Francisco. He rejected his religion. My mother

grew up in a family largely headed only by her mother, abandoned by an abusive alcoholic father who raped my mother when she was a teenager. My suffering grandmother worked in a neighborhood church, where she imbibed the Gospel, believing she would ascend into the arms of Jesus when she died. Neither mother nor father believers, shelving a book by Freud dealing with the profound misguided illusions of Christianity: this was not exactly the incubus for a religious stalwart. Still, the question burned in my consciousness: why do some believe in God? Why are some vouchsafed the security of faith, embossed in their brains and souls, while persons like myself are denied, seemingly at birth, an inclination to subscribe to a formal doctrine-infused worldview, in point of fact an identity as a member of a congregation? These were questions I had wished to discuss with my father, sadly passed away before we could have the conversations.

I have relatively few memories from my growing up that I can vividly recall. One is of a magazine cover shelved in a rundown neighborhood store selling tobacco, gum, and candy. It displayed a man being electrocuted in an electric chair, sparks and flames seeming to fly forth from his frame poised between life and death, writhing in agony, the chair and the body thrown back and forth it appeared from the blur captured by the pitiless unfeeling record secured by the photographer. From that point I embraced a deep belief that capital punishment is wrong. Period. In this conviction I was drawn toward the writings of Camus, for whom the thought of the guillotine or the firing squad was anathema. Somewhere along the line I extended my nascent belief system to incorporate an absolute refusal to participate in war. From Camus's writings I have learned a great deal. Often mislabeled as an existentialist – or an absurdist because his *Myth of Sisyphus* dwelled on the absurdity of human existence in a universe in which knowledge of truth was impossible, confounding our best efforts to act according to set precepts or with abiding faith in the veracity of our achievements – Camus was more than anything a humanist. His driving agenda was to argue for living according to a creed in which every life is sacred, in which certain actions are simply inhuman. As well he was a kind of anarchy-socialist.

None of this translated into political action for me. From an early age I realized I had no affinity for practical politics. I lacked charisma for one

thing. For another I was too much of an individualist to permit my brain to rented, hijacked, by a particular political movement. I participated in the Free Speech Movement when I was a student, walking picket lines and attending rallies. In no way did I want to be a leader. Still, it was a euphoric experience, a carnival. People spontaneously joining together in a common purpose, hopeful, idealistic, and willing to listen to each other. Sure, there were plants from the Federal Bureau of Investigation milling around, sure people were arrested for sitting in throughout the halls of Sproul Hall, sure the California governor Ronald Reagan gained national recognition denouncing the students, sure the ideological stance of the leaders like the supremely gifted orator Mario Savio (pictured speaking in front of Sproul Hall) were a mixture of liberalism and hardcore Marxism, sure four decades later student demonstrators would turn their backs on free speech.

Pacifism

Reaping the whirlwind of his disastrous decision to launch a full-fledged attack on his ally the Soviet Union, Hitler saw his armies retreat on the eastern front during most of 1943 and 1944. Hitler's folly was Stalin's golden opportunity. Stopping Hitler's onslaught on Stalingrad in early 1943, his armies launched a ferocious campaign to drive the German forces back into Germany, forced to defend Berlin in a cruel finale to Nazism's vaunted belief in Total War. As Russian troops moved westward – racing with the Allied British-American forces closing in on Germany from the

coastline of Normandy and the contested Italian boot – they set the stage for a wholesale transformation of Eastern Europe into a quasi-Soviet empire, a Communist bloc committed to Stalinism. As the sole pivot area of Eurasia, able to move troops back and forth from Europe to Asia on trains crisscrossing the Soviet land mass, Stalin was in an ideal position to extract concessions from President Truman at Potsdam. The Soviets agreed to rip up their non-aggression treaty with Japan, thereby launching a concerted ground attack on Japanese armed forces occupying Korea and Manchuria. In exchange they expected geopolitical rewards, territories once conquered and held by the Axis powers. From a de facto realist point of view troops on the ground are paramount.

The fall of China to the Communist Party's People Liberation Army, the defeat of the Chinese Nationalists who fled to Taiwan in the late 1940s, signaled the consolidation of a Communist bloc stretching from East Berlin in the west to Shanghai in the east. This state of affairs threatened the American alliance with its Western European friends and its occupation of Japan won through a brutal air and navy campaign, as Japan's empire in East Asia and the Pacific slipped out of its grasp. It was this hard cold geopolitical reality that prompted the United States government to patch together a set of alliances designed to contain the Eurasian Communist bloc. An offshoot of the Containment Policy was the defense of the South Vietnamese government – Vietnam having thrown out French and Japanese rule was divided in two – by its enemy to the north, Communist North Vietnam.

From the viewpoint of many young Americans the Containment policy seemed to be a revamped version of Western imperialism. Fighting the war with drafted soldiers, many students who distrusted the stated aims of the Kennedy and Johnson administrations in Washington, divided the United States politically. One of the consequences was the burning of draft cards and American flags on college campuses; another was a flight to Canada by erstwhile draftees, unable to secure Conscientious Objector status by their draft boards.

I was one of the lucky ones. My draft board was in Berkeley, a relatively liberal leaning community. Formulating a humanist inspired argument about the sanctity of human life I submitted a handwritten letter to my

board. In that letter I asserted that I was prepared to go to jail should I not be classified as a Conscientious Objector, should I be ordered to enlist in one of the armed services. To my relief the board agreed with me.

Could I have selected any alternative service I would have worked in a program assisting people in disadvantaged communities, aiming to work with the poor, those disregarded by society, even as programs developed during the heyday of the Great Society agenda of the Johnson administration continued to flourish under the administration of Nixon. As it transpired this does not actually happen. What I did do was provide transportation for a group of University of California students offering tutoring services to African-American communities in Oakland. Without doubt in thinking about graduate school in economics I was first and foremost interested in poverty. But Asia – the primary battleground in the Containment Policy – called out to me as well.

Economics

Entering the PhD program in Economics at Harvard University I decided to focus on Asia, specifically Japan. That were many reasons, some personal for sure, for taking up a Japan-focused program but there was little doubt that availability of hard quantitative data (the Chinese Communist data considered highly unreliable during the 1970s) carried great weight with me. I recognized the growing interest in quantitative analysis within the field of economics and economic history. Indeed, when I entered the department I wished to work with Alexander Gerschenkron, Simon Kuznets, and Wassily Leontief (architect of the input-out model); particularly the tradition established by the notable Joseph Schumpeter who had been a strong proponent of the Austrian school approach that disparaged equilibrium analysis in understanding the position of an aggregate economy. Schumpeter's focus was on cycles, long-run Kondratieff waves, shorter run business cycles that oscillated around technologically driven waves.

Unfortunately, these figures were gradually being marginalized in the department I entered in the 1970s. Kuznets was retired. Gerschenkron's vaunted seminar in economic history was in decline after its heyday a

decade earlier. Neo-classical equilibrium analysis was taking over: linear-programming developed by Paul Samuelson and his colleagues at the Massachusetts Institute of Technology was the flavor of the month, or at least the flavor of the decade. In aggregate economic analysis the focus was on the natural rate of unemployment and the Phillips curve describing the relationship between unemployment and inflation (if the rate of unemployment falls below the natural rate there is upward pressure on prices, the obverse holding when unemployment soars above the natural rate, promoting deflation). From my point of view, I thought the Philips curve was a bit of hocus-pocus as it did not break down aggregate price movements into luxuries relevant for the rich and the goods and services for the essentials – housing, food, and clothing – consumed by the poor and disadvantaged. Moreover, I never understood how unemployment as conventionally measured captured the real burden of underemployment combined with unemployment. The unemployment rate is a measure of the percentage of the labor force actively measured as either holding a job or looking for work. What about discouraged persons who have given up on finding regular work? What about persons who dabble in crime, break and entering buildings, dealing drugs? What about women who would like to take a job but are prevented by a hostile spouse, mother-in-law, or father? More to the point: measures like the unemployment rate or the inflation rate were constructs lacking careful experimental documentation, like the speed of light or the speed of sound. One could argue about how exactly to determine the speeds of sound and light but not about the fact they were questionable constants, continually changing, easy to criticize as misguided anchors for serious analysis.

History

Pursuing research on Japan was a good choice for a scholar who wished to follow in the footsteps of Kuznets, Schumpeter and Gerschenkron. Under the guidance of Henry Rosovsky, the economic historian/economist at Harvard with deep roots in the Japanese economics field, I learned to my great satisfaction that Japanese data going back into the late 19th century was abundant, matching the best sources available for Europe and the United States. Of particular interest was the Hitotsubashi University project aimed at compiling and publishing a comprehensive set of volumes

containing estimates of aggregate economic and demographic statistics that ran from the early Meiji era through to the contemporary period. What particularly fascinated me when I studied some of these data was a peculiar pattern evident in the statistics on mortality and fertility. They showed the birth and death rates rising from relatively low levels in early Meiji, only falling later on. The normal assumption in demographic transition theory is that there is some kind of Malthusian equilibrium before industrialization sets in, birth and death rates both high initially, only dropping later on as the impact of factory employment undercuts the use of child labor (draining away households from farming) and offers opportunities for females in urban conurbations. This was a puzzle that gripped me. The evidence seemed to contravene the theory. What could you cull from a careful examination of the empirical evidence? Following the approach of Kuznets, I wanted to let the theory emerge from the data in an inductive process, rather than starting with a prior set of propositions derived from a theoretical framework, engaging in "testing" so to speak. Which is not to say that I have always adhered to this approach, particularly when presenting my findings to an audience of economists, most committed to "testing" a theory they believe – or purport to believe – is valid.

When I published "Demographic Transition in Japan" in the *Journal of Economic History* I thought I had made a breakthrough. But reading the referee reports on the article I should have realized something telling, a forecast of future struggles. The referee, committed to an alternative neo-classical approach to research, denounced the paper as incoherent, confused, devoid of economic theory, and so forth. This was not the last time I would hear that my research was half-baked. Should I have heeded the rebuke? No way. I moved forward.

Hired, fired

In the late spring of 1976 it seemed a dream had come true. Graduating from the Harvard Economics Department with a thesis dealing with the Demographic Transition in Japan I was looking forward to returning to the University of California as an Assistant Professor. Little did I know at that time seven years later, the dream shattered, supplanted by a horrific nightmarish morass, my position at Berkeley was terminated by a curt letter

from the Chancellor informing me my services would no longer be required because it was obvious to the powers that be that I failed to grasp the nature of economics. Let alone grasping the ins and outs of Japanese society, particularly the nature of the family system. Oh yeah. Sure. Not really. Humiliating. Actually, not so much. There is nothing like confronting the fact that scholars harboring the best intentions, but completely convinced of their rectitude, are prepared to overlook another scholar's approach to analyzing empirical regularities documented by statistics.

What were my apparent sins as an economist explaining the demographic transition in Japan with a model that takes patriarchy as a fundamental factor explaining outcomes? Well first of all I was implicitly rejecting the mainstream economic theory of fertility that emphasized the universality of the nuclear family, both mother and father enjoying equal participation in family decision making. As well I did not embed my reasoning in a general equilibrium framework. Heaven forbid! That I was prepared to emphasize the demand for female labor services in impacting decision making by men wielding patriarchy rights was lost on sociologists and anthropologists who had other ideas about the influence of culture. In short a confluence of objections stemming from the fragmentation of learning into discrete units – economics, anthropology, history, and sociology – did me in. But for someone about to be thrown into the dustbin of history this was scant consolation.

Contemplating the decision the tenured members of the department now – benefiting from the truism that time elapsed that heals all wounds – I can understand why their appraisal of my abilities made perfect reasonable sense. The fact is it was clear from my record that I was unlikely to publish in prestigious mainstream economics journals. More likely I would write books which are not given priority in the field of economics, rankings based only exclusively upon articles published in the top field journals. Expectations were accurate in that sense. On the other hand, if they had considered my potential as a scholar regardless of pigeonhole, who knows? Expectations are a tricky thing. How you formulate, frame, them depends on how you frame the question of whether expectations about future positive performance are trustworthy.

More to the point, being fired as an Assistant Professor opened up the possibilities of embracing the dark demons of downward mobility big

time. If you were not lucky to land another academic job there were some debilitating prospects you could cogitate as you sent out letters asking for help from academics you hoped would not stab you in the back. You never know? Right. Well, here you are cooking up polish sausages at the Top Dog near the Berkeley campus: "Hi, Carl, weren't you a professor? Yeah, I was part of the academic circus up there. But I never learned to jump through the appropriate hoops. Guess I should have gotten more obedience training being a festival animal. But hey, there's nothing like frying up hot dogs for your former colleagues." Or maybe you could pump gas, stock shelves at Berkeley Bowl market, or be a bank clerk. Lots of opportunities for a tossed-out scholar.

Or perhaps you might get lucky and land another position. As a committed scholar who has been denied tenure – not once but twice – before finally receiving it on my third try as a Full Professor in a university best described as being in the minor leagues, I think I have something to say about the nature of mainstream economics1. Not necessarily complementary to the elite professors in the ranks of academia who determine what is acceptable and unacceptable as a tried-and-true member of the tribe.

Yet this career train wreck was liberating in a fundamental way. It made evident to me – having overcome the shame that I was a failure as a scholar – that I was actually an intellectual rebel, committed to overcoming the orthodoxy of mainstream economics by employing insights culled from eclectic history. With this identity growing stronger as I ventured into new research projects, I found myself. In that sense I believe (channeling a sentiment expressed in song by Bob Dylan) behind every beautiful thing is some kind of pain.

CHAPTER TWO

Two Axial Age Worldviews Contested

"There is no God, but don't tell that to my servant,
lest he murder me in the night."
Voltaire

Thrust into an intellectual climate in which God is dead for some, what is left of morality? Why behave ethically? For people in many parts of the world – China for instance – the question is not even meaningful. One shrugs "so what? In countries in which monotheism is deeply entrenched – in Europe, the Americas, Russia, swaths of Africa, the Middle Eastern Arab countries, Turkey, and Iran – the question lurks throughout literature, politics, and social relations. For a pioneer of humanism like Albert Camus it shaped his literary imagination. Throughout his classic novels – *The Stranger, The Plague, The Fall* – it is a major concern, perhaps not the only major concern, but surely one that he struggled with throughout his short life. In *The Plague* the narrator, struggling with overcoming the spread of the plague, exhausted from watching person after person ravaged by the bubonic monster, drained by treating friend and intellectual adversaries like the Catholic Priest, addresses his despair about his inability to believe in a God[1]:

> "…since the order of the world is shaped by death, mightn't it be better for God if we refuse to believe in Him and struggle with all our might against death, without raising our eyes toward the heavens where He sits in silence?"

The silence of God. How to deal with this silence is often as not the first step a humanist takes in developing a personal philosophy, a set of principles to adhere to, a set of maxims that pervade his or her conscience.

Why did monotheism develop in certain regions of the Eurasian land mass? What are its origins? Why did it clash with other worldviews that like monotheism rely on appealing to a transcendental world?

Three Types of Intelligence: Cost/Benefit; Playful Genius (the Dance); and Wisdom

What is intelligence?

Human intelligence is both individual and social. It is neither one nor the other. The individual and the social are intertwined, tangled together, inseparable. Failure to appreciate this fact has been the source of considerable confusion in discussions of AI as a source of intelligence.

Getting a handle on individual intelligence is a tricky conceptual question that has plagued Western philosophy time out of mind. Is the brain a blank slate upon which experience writes, ultimately yielding rationality in a universe guided by natural laws? John Locke thought so. But if so why behave morally? Given the diversity of ethical precepts worldwide – Confucian, Buddhist, Christian, Muslim, Taoist – is it credible to assert that ethical norms are part and parcel of natural law? Can one plausibly claim that ethics are somehow universal? People are socialized according to norms that vary tremendously by dint of religious dogma and the practical give and take of everyday life. Children are raised in families or collectives according to culturally shaped norms.

Emmanuel Kant, rejecting the notion that human intelligence is solely grounded in experience opted for theory in which it is grounded in both a priori thinking – intrinsic – and experience. He labelled the intrinsic transcendental. In his formulation all humans are endowed with a Categorical Imperative that tells them to act according to rules that they believe everyone should adopt. In short "do unto others as you would have them do unto you." Without a binding sense of duty to a higher principle true freedom is impossible. By definition duty is wrapped up with emotion. Hence intelligence is more than merely weighing up costs against benefits as an advocate of strict utilitarianism would say. Rationality is all, encompassing the cost-benefit calculus that is a mere subset of human intelligence. It is said Kant derived considerable satisfaction from the fact his theory of rational behavior did not contravene the widespread belief in Christian faith, notably pietism, prevailing in his environment. Faith was justified in his eyes because it was consistent with the first principles of human intelligence.

A stronger argument justifying the persistence of religious faith came later. Writing in the nineteenth and twentieth centuries the American philosopher, espouser of pragmatism, maintained that belief however unfounded in reality could and did confer psychological benefits on the believer. In *The Varieties of Religious Experience* James argued research in psychology (an academic field he was an expert in) demonstrated that intelligence was strongly influenced by emotions. If belief in an afterlife provided solace to the grieving widower so be it. The emotions were valid because they conferred a sense of acceptance, driving away anxiety and depression. Belonging to a church community of likeminded individuals was comforting. Individual intelligence mirrored the society one bonded with; it reflected the emotions released both in public and in private.

As a practical matter most organizations – notably government agencies, private company personnel departments, army and navy recruiters – are mainly concerned with so-called reasoning capacity of recruits and employees. Hence the popularity of the IQ (Intelligence Quotient) as a metric of intelligence. In a bizarre take-off on this approach Hernández (2017) argues that the intelligence of AI driven machines, robots in particular, should be measured in terms of IQ capacity.

I leave it to AI extremists to make the case that this is intelligence. For my money, there are more convincing alternatives. Consider the common-sense philosophical model proposed by Thagard (2019) who believes philosophy should rely heavily on what we know about the way human brains operate. It would be fair to say he is a modern disciple of William James in appealing to social interaction and emotions. Drawing upon recent advances in neuroscience, a field that was only getting off the ground when James was writing, his approach clearly updates James. In particular Thagard brings to bear experimental evidence on his theorizing, integrating social norms, mental states, neural connections, and molecular characteristics like the presence of proteins in a framework he describes as "coherence." Things "hang together" reinforcing each other even if they are inconsistent on logical grounds. Inconsistency itself is important. To be intelligent in the sense that one is human the following conditions must hold: (1) the brain must work with concepts that are mental representations roughly corresponding to words; (2) emotions must play a role; and (3)

one must be able to solve problems. Intelligence is multi-level. Bayesian reasoning whereby people revise priors is insufficient to account for human reasoning because emotions get in the way. Psychological conditioning in families explains why religious beliefs persist. Social forces are important, but group minds do not exist. Intelligence is individual albeit influenced by the communities one adheres to in work, play, and domestic family life.

Why has Intelligence Evolved over Time? The Incompleteness of Knowledge

Crucial to my argument about intelligence is the importance of incompleteness of knowledge. The collapse of Newtonian mechanics is a perfect example. Had the benefits of mastering electricity not been so evident to a general audience of non-specialists in science, the Newtonian approach might have continued to dominate the field of science providing a compelling framework for explaining how the material dynamics of the universe. But bend its framework as many theorists tried, it ultimately failed to account for new findings in the field of electricity and magnetism. Had the unintended consequences - clinging to a Newtonian framework that was viewed by many scientists as absolutely true despite their commitment to being objective in interpreting empirical findings- not been so entrenched, the struggle to introduce special relativity theory and quantum mechanics would not have been so arduous or so contentious. This type of story – the struggle to expand wisdom in the face of entrenched certitude – is an ages old tale. At a fundamental level it illustrates the importance of knowledge as an evolving phenomenon, never fixed. So-called progress comes at a price.

Clinging to Hunting and Gathering Lifestyles Runs Up Against Resource Constraints

Foraging tribes live off the bounty of the land. They hunt animals; they fish and shoot down fowl; they denude forests for vegetable food and fruit, chopping down wood for building structures, making fire for cooking and the forging of metals. Most studies suggest the typical hunting and gathering population is able to subsist without working many hours a week. Why not continue to persist in this lifestyle indefinitely? The reason: eventually their activity runs up against resource constraints. Cut down

too many trees, strip the fruit trees completely, kill most of the easily hunted animals, and you run up against resource constraints. One of the unintended consequences is organized warfare.

There is only so much room in a resource rich environment. Indeed, in the cost/benefit calculus surrounding the acquisition of food, shelter, and clothing maintaining security from attacks directed by rival tribes is paramount. When you are out hunting be careful to avoid territory claimed by rival groups. You might be clubbed over the head by a rock, or shot by a poisoned arrow, or thrown off a precipice by an angry member of an enemy tribe. Indeed, as Diamond (1997) convincingly demonstrates this is one reason why hunting and gathering gives way to settled farming. It is an impetus driving the Neolithic Revolution in environments blessed with wild ancestors of easily domesticated plants and animals. By the same token it is a reason why farming spreads. It is one reason why foraging peoples are eventually marginalized by farmers.

Of course, switching from hunting and gathering by embracing settled farming as a lifestyle - tending sheep and cattle, carving out irrigation ditches in order to water fields bristling with rows and rows of grains and vegetables – does not lay the security problem to rest. If anything it intensifies it, rendering an obsessively feature o of the cost/benefit calculus. Why? Because territory is involved. Why did Chinese emperors expend vast resources constructing a forbidding wall buttressed by fortifications to fill in holes between the segments fashioned from stone and timber? Why did the Roman Empire collapse? The more affluent your territory the more attractive it is to invaders, for instance to the steppe peoples of the far-flung Eurasian center, to the Goths, Huns, and Mongols migrating here and there on the plains.

In short necessity is a mother of invention. But it is not the only mother. The other is charismatic genius arising of the emotional frenzy of the social dance. Think of supply and demand for innovation interacting one with the other, driving change over chronological time.

Genius Upends Wisdom

Were wisdom, the frenzied dance, and the practical world of securing basic needs in some kind of steady state equilibrium we would not necessarily

expect that changes in one layer of human intelligence would upset the others. The problem for a steady state approach is that the three layers of intelligence are never in equilibrium. They challenge each other. Genius spun out from the dance can and does drive forward the basic means by which human necessities are secured. Moreover, as we have seen from the example involving the impact of harnessing of electricity upon wisdom concerning the material dynamics of the universe suggests that each movement in any one layer can and does upset the applecart. There is no steady state. There is no equilibrium. Settling down to motionless state is an illusion, comforting perhaps, but nevertheless an illusion.

That individual intelligence interacts with social environments raises the question of where the line between the individual and the group should be drawn. The social brain hypothesis argues that social forces loom large, particularly when we are thinking about why humans were able to develop technologies that apes and chimpanzees have failed to accomplish. The idea is simple: maintaining and servicing the kinds of emotionally taxing relationships involved in social situations involves serious cognitive function. Brain size is crucial to being able to manage the complexities involved as groups get larger and larger. What differentiates humans from other species is their ability to develop a communication methodology – language – that permits them to coexist and cooperate in groups of least 150 individuals. Harari (2014) has popularized this concept arguing that living in groups of at least 150 individuals was the basis for the Cognitive Revolution that set humans off on the path to technological progress.

These remarks however brief will serve as the launching pad for my formulation of what constitutes intelligence. In my view intelligence is both individual and social. It consists of three distinct layers: the ability to formulate and solve cost/benefit problems, namely to adopt safety first strategies in hostile environments; the capacity to engage in social play that spawns individual genius; and the ability to be wise, to formulate comprehensive theories of meaning that explain how the universe operates and how humans play a special role in that universe.

When I think of hunting a beaver in a forest grove populated with poisonous snakes, when I think of sailing an outrigger on turbulent seas,

when I think of throwing coal into a blistering firebox, I think of doing these tasks with due regard for risk. I want to minimize the chances of being maimed or killed subject to accomplishing the task I set out to do. I weigh up expected costs against expected gains. This is what I mean by safety first in a hostile environment. With little doubt both individuals and groups do this continually and without giving a lot of thought to how to do what they set out to do. Individuals are socialized in groups, taught and instructed as children, coerced as slaves if unfree, to do these things. Separately the individual intelligence from the group intelligence is a tricky thing to be sure. Still it is obvious that individuals, having imbibed knowledge from peers and superiors, make reasoned judgements on how to best perform the task at hand on their own. For the basic needs of humans, those things required for survival – food, shelter, and clothing – it is plain enough that safety first in a hostile environment is fundamental.

When I think of charismatic genius I think of play[2]. I think of frenzied dancing driven to a fever pitch by an impassioned group of musicians playing drums, guitars, castanets, and oboes. I think of masses gathering around a prophet espousing a compelling message of salvation. I think of imposing architecture crafted by inspired architects that serves to awe the masses. I think of events and concepts and structures that trigger emotions. I think of the interplay of a group and a gifted individual. I think of creativity. Rather than thinking about the purposeful pursuit of mundane necessities, I think of luxuries and leisure activities, of novelties, that charm, that conjure up fervor, that raise human life above and beyond sheer drudgery.

When I think of wisdom I think of something comprehensive, something opening a door to the meaning of human existence itself, to the mystery of nature, to the transcendental, the unseen and invisible reality that simple untutored experience fails to convey. I think of metaphysics. I think of a worldview inspired by religious doctrine that accounts for natural reality and morality simultaneously. I think of something that has the aura of the timeless and unchanging. I think of awe bereft of the frenzied crowd. That wisdom is both individual and social is a given. Gifted individuals schooled in grand traditions espouse it, potentially changing it. Overthrown or not a grand tradition radiates a sense of quiet contemplation of eternity. Just

because a woman is a secular humanist, decidedly not a Christian believer, does not mean she cannot feel herself seized with a sense of awe in taking in the grandeur of Bach's *Saint Matthew Passion*. But can a modern listener listen to that music without knowing the limitations of Bach's approach to composition, revealed among other things by the introduction of serialism in music launched by the Second Viennese School in the late nineteenth and early twentieth centuries?

The First Two Phases in the Growth in Complexity of Intelligence

Animal Inspired Intelligence

By animal inspired intelligence I mean intelligence focussed on manipulating the intelligence of animals. Train dogs to assist in the hunt; frighten animals with bush fires, driving them against canyon walls where they can be readily slaughtered; turn what you know about animal intelligence into a weapon for maximizing food intake; use animals – mice, rats, fish, birds - as bait to attract natural predators rich in meat. All of this takes diligent observation. The remarkable range of spoken vocabulary amongst forager groups capturing in minute detail the diversity of sub-species and species surviving in the natural environment testifies to this fact1. All of this reflects deep immersion in the world of animals. All of this points to the fact hunter and gathering peoples develop strategies for survival that rest heavily on exploiting the intelligence of wild animals. That they domesticate dogs as fellow predators, likely engaging in selective breeding of sub-species that possess unusual prowess in tracking prey, suggests this is the result of experiments. The conscious manipulation of non-human intelligence in the human struggle to obtain necessities – securing elk meat for roasting and stewing, beaver pelts for fashioning clothing, bear skins for enhancing the construction of shelter – is no more and no less than a weighing up of expected costs and benefits won through generations of experiments.

One cannot rule out manipulating plant intelligence as well. Whether vegetation has intelligence of a sort is a highly controversial subject. There are some ecologically minded scientists who believe this is the case. It is said trees communicate with another through their network of roots, that fungi interact with the vegetation they which they attach

themselves. Who knows? Is it farfetched to think hawk owed foragers naturally realize plants and trees stretch out to the sun in order to nourish themselves with energy, in order to flourish? Is it a stretch to imagine that gatherers cleared openings within dense forests, aiming to foster nutrition rich meadows alive with masses of berry bushes, basking in the warm rays of the sun's energy?

In short this is artificial intelligence at its primal stage, Conscious artifice is in abundance. Hunting without dogs is dangerous and wastes time. Feed the dogs; breed them; invest in their remarkable capacity to smell and hear sounds in the forests. Weigh up the burdens of doing all of this against the likely benefits: time saved; more meat garnered; threatening predators avoided. In short artificial intelligence with a vengeance. Moreover heuristics – trial and error, rules of thumb – are another cornerstone of hunting and gathering that resembles AI. How do you know which arrows are the most potent? How do you gauge the trade-offs between heavily populated hunting groups that can successfully kill large animals and small tightly controlled groups that focus on smaller game? How do you know when to abandon a hunting ground that may have been depleted, picking up stakes and relocating? Trial and error is key to maximizing sustainability in a forest or desert environment. One can even describe coming up with answers to these challenges as following a kind of Bayesian logic, incorporating experience into the knowledge base of the tribe.

Moving beyond the use of the cost/benefit calculus to charismatic play I maintain descriptions of religious rituals in forager communities – the frenzied dances celebrating totems, the deep emotional attachment of tribal clans to the animals, sometimes plants, they revere, the fashioning of symbolic objects representing totemic creatures – confirm the hypothesis that animal intelligence dominates hunting and gathering peoples. Wisdom also: the myths of forager peoples relating humans to sacred animals, typically told by elders who pass them on from generation to generation, also speak to a concerted focus on animal behavior.

In relying on Durkheim's classic account of the rituals and myths of hunting and gathering communities I admit I am being narrow in my attention to their rituals and myths. It will come as no surprise to the reader that

I am fully aware recent anthropological research has questioned some of his conclusions which after all were mainly based on religious and ethical concepts held by aboriginal peoples in Australia, to a lesser extent on descriptions of First Nation communities in North America. There is no Brazil here; there are no people of the Andes here; there is no discussion of forager communities in South East Asia and India. And yes, Durkheim wrote a long time ago.

Still I think I am on solid ground in making a few generalizations that bear on my thesis. The crucial points can easily be summarized as a set of propositions about the relationship of the tribe to specific animals. Animal worshipping is endemic, totemic cults forming around specific animals that are revered as sacred. A totem spawns a group linkages bringing together under its umbrella a host of diverse natural phenomena. Taken together the worship of totems becomes a symbolic system incorporating what the tribe collective believes is a comprehensive explanation for how the universe operates. Mimicking totemic symbols is key to the frenzied religious rituals, to the emotional dances of the tribe, Ecstatic religious rituals unleash individual creativity that is also buttressed by the practice of magic which acts as a parallel system. The totemic system as a whole either – intentionally or unintentionally = attempts to throw a blanket of protection over the species of animals and plants the tribe depends upon for food. Wisdom takes the form of myth, largely being the repository of the elders, and typically evokes relations between animals and human ancestors. The origin myth is crucial to the social solidarity of the tribe as a cultural unit.

Durkheim's brief is that religious practices are primary social. They convey group solidarity. They are a form of social intelligence. They stimulate mental states within groups sharing a common belief system. Unlike magic which is individual – magicians assisting specific clients who want to protect themselves from disease or who want to become pregnant or who desire protection from evil spirits – religion is about the sacred, separating it off from the profane world of hunting and gathering in ecstatic rituals bristling with emotions.

Why I emphasize animal intelligence is simple. As noted, the religious practices of forager peoples revolve around totems that are typically