ON THE PROBLEM OF SUSTAINABLE ECONOMIC DEVELOPMENT

A Game-Theoretical Solution in Brief

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$ No one was more obsessed with originality, more disdainful of authority, or more jealous of his independence. As a young man he was surrounded by the high priests of twentieth-century science – Albert Einstein, John von Neumann, and Norbert Wiener – but he joined no school, became no one's disciple, got along largely without guides or followers. In almost everything he did – from game theory to geometry – he thumbed his nose at the received wisdom, current fashions, established methods. He almost always worked alone, in his head, usually walking, often whistling Bach. Nash acquired his knowledge of mathematics not mainly from studying what other mathematicians had discovered, but by rediscovering their truths for himself.... His indifference to others' skepticism, doubt, and ridicule was awesome.

– Sylvia Nasar, *A Beautiful Mind*, 1998

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EPIGRAPH

It is all too clear at this moment that there are many ways for a [paper] to begin; and most of those in plain sight are transparently bad. We are tantalized by the thought that somewhere among them *may* lie hidden a few having such noble qualities as these: The reader [is] informed – perhaps without suspecting it, though in the clearest prose – of what the writer intends to discuss; yet at the same time, it sounds like the Lorelei calling.…

If we could devise an opening strategy such as that, it would wonderfully exemplify the theme and aims of the [thesis], for our concern throughout will be with a method for selecting best strategies, even in contexts where the word 'strategy' itself may not be in common use.

The contexts of interest to us are those in which people are at cross-purposes: in short, conflict situations. The problem of how to begin this [paper] is recognizably of that type, for certainly you and [I] are at cross-purposes, as our interests are opposed – in a polite way, of course, but definitely opposed. For [I] hope to cozen you into a very difficult type of intellectual activity, while you, a reasonable person with enough trouble already, may crave only relaxation or satisfaction of curiosity.

– John Williams, *The Compleat Strategyst: Being a Primer on the Theory of Games of Strategy*, 1954

ABSTRACT

This thesis tables evolutionarily stable strategy for the problem of sustainable economic development on earth and other earth-like planets. In order to accomplish the task at hand with so few words, we hit the ground running with an exploration of Bertrand Russell's conjecture that economic power is a derivative function of military power. Next we contextualize the formidable obstacle presented by teleological thinking. Third, we introduce *Truly Non-cooperative Games* – axioms and complimentary negotiation models developed to analyze a myriad of politico-economic problems, including the problem of sustainable economic development. Here we derive, contextualize, and utilize *The Principle of Relative Insularity* (a unified theory of value which unites economics, astrophysics, and biology) to solve the problem at hand: In the light of evolution, Popper's solution to Hume's problem of induction, and within a simplified game-theoretical context, we find winning economic development strategy for Islands and *Relatively Insular States* (RIS) = *Maximum Ecological Preservation*, and *Globalized Economic Military Superpowers* (GEMS) = *Maximum Economic Development*. Surprisingly, perhaps, we also discover these inherently opposed development strategies represent a strategic equilibrium, and thus evolutionarily stable strategy at the global level. Finally, we offer a synthetic narrative in which we explore several crucial logical implications that follow from our findings, especially as they relate to central banking, monetary policy, investment strategy, leisure activity selection, political ideals, and the ancient wisdom of the Second Amendment to the United States Constitution.

DEDICATION

For William and Isla[$]

[$] Most people, [Dear William and Isla], complain about the meanness of nature, because we are born for a brief span of life, and because this spell of time that has been given to us rushes by so swiftly and rapidly that with very few exceptions life ceases for the rest of us just when we are getting ready for it. Nor is it just the man in the street and the unthinking mass of people who groan over this – as they see it – universal evil: the same feeling lies behind complaints from even distinguished men. Hence the dictum of the greatest of doctors: 'Life is short, art is long.' Hence too the grievance, most improper to a wise man, which Aristotle expressed when he was taking nature to task for indulging animals with such long existences that they can live through five or ten human lifetimes, while a far shorter limit is set for men who are born to a great and extensive destiny. It is not that we have a short time to live, but that we waste a lot of it. Life is long enough, and a sufficiently generous amount has been given to us for the highest achievements if it were all well invested. But when it is wasted in heedless luxury and spent on no good activity, we are forced at last by death's final constraint to realize that it has passed away before we knew it was passing. So it is: we are not given a short life but we make it short, and we are not ill-supplied but wasteful of it. Just as when ample and princely wealth falls to a bad owner it is squandered in a moment, but wealth however modest, if entrusted to a good custodian, increases with use, so our lifetime extends amply if you manage it properly.

Why do we complain about nature? She has acted kindly: life is long if you know how to use it. But one man is gripped by insatiable greed, another by a laborious dedication to useless tasks. One man is soaked in wine, another sluggish with idleness. One man is worn out by political ambition, which is always at the mercy of the judgment of others. Another through hope of profit is driven headlong over all lands and seas by the greed of trading. Some are tormented by a passion for army life, always intent on inflicting dangers on others or anxious about danger to themselves. Some are worn out by the self-imposed servitude of thankless attendance on the great. Many are occupied by either pursuing other people's money or complaining about their own. Many pursue no fixed goal, but are tossed about in ever-changing designs by a fickleness which is shifting, inconstant and never satisfied with itself. Some have no aims at all for their life's course, but death takes them unawares as they yawn languidly – so much so that I cannot doubt the truth of that oracular remark of the greatest poet: 'It is a small part of life we really live'

– Seneca, *On the Shortness of Life*, *c.* 60 A.D.

ON THE PROBLEM OF SUSTAINABLE ECONOMIC DEVELOPMENT

It has been nearly one year since our friends at The Lifeboat Foundation published *The Principles of Economics & Evolution: A Survival Guide for the Inhabitants of Small Islands, Including the Inhabitants of the Small Island of Earth* (Funk 2010a). This brief communiqué presents a bare-bones overview of the theoretical development detailed in that exhaustive report.

Chapters I-IV were published between May of 2008 and December of 2004. **Chapter V**, a letter to President Barack Obama (Funk 2010c), was published by the Lifeboat Foundation on July 4th, 2010, but has been condensed, updated, and revised to compliment, synthesize, and conclude our thesis; as noted, all five chapters are freely available as individual publications, linked to our **TABLE OF CONTENTS**.

Chapter I, *On the Problem of Economic Power: Lessons from the Natural History of the Hawaiian Archipelago*, presents an exploration of Bertrand Russell's conjecture that economic power is a derivative function of military power. Although our narrative is primarily focused upon common resource dilemmas (*cf.* Funk 2009c), we are, naturally, interested in financial sustainability as well, which we shall explore in **Chapter V** (also see: Funk 2010a, Appendix III). This chapter was derived and illuminated through comparative island study, and includes a short discourse on methods. In reality, there's nothing new here – in fact, these truths have been well known and meticulously documented for well over 1,000 years (*cf.* Renatus 390 ; Aumann 2005) – but it may prove to be a worthwhile, engaging, and stimulating read nonetheless, as these truths have become so unfashionable that they've slipped back into relative obscurity.

Chapter II, *On the Origin of Mass Extinctions: Darwin's Nontrivial Error*, digs into the heart of the matter. Following upon the heels of the dimly seen and invariably misunderstood truths illuminated in **Chapter I**, this 13-page chapter offers a grand panorama of another long-standing, deeply entrenched bias that also obstructs a clear view of our "problem situation". Here we confront the menace of teleological thinking. Darwin's monumental contribution to knowledge cannot be emphasized enough, indeed, Darwin's discoveries are celebrated throughout **Chapter IV**; furthermore, one could even argue that the primary thrust of this thesis is an effort to help foster a clear, realistic, evolutionary worldview. To echo the obvious in the words of T. G. Dobzhansky:

> Is evolution a theory, a system, or a hypothesis? It is much more, it is a general postulate to which all theories, all hypothesis, all systems must henceforward bow and which they must satisfy in order to be thinkable and true. Evolution is a light which illuminates all facts, a trajectory which all lines of thought must follow, this is what evolution is (1973, p 129).

Darwin's error – a misreading of the fossil record – may seem like a minor or perhaps even trivial oversight. However, as Gould detailed in his *magnum opus* of 2002, Darwin's failure to recognized the fundamental role mass extinctions play in the evolutionary process has had (and continues to have) long-lasting, deleterious effects insofar as grasping and effectively framing countless weighty issues, including the problem of sustainable economic development:

> One can argue that all environments are hostile, and that death and extinction are probable events, while survival is improbable. Just how life has managed to overcome this improbability is a problem which many biologists find challenging and fascinating. In my opinion, this problem may well be used as the framework on which to build the teaching of biology (Dobzhansky 1964, p 450).

As suggested in this chapter and throughout the remainder of this thesis, this problem also serves as a solid foundation upon which to build the teaching of economics and, ultimately, the development and deployment of sound strategies with which to effectively address the problem of sustainable economic development.

Chapter III, *On the Truly Noncooperative Game of Life on Earth: In Search of the Unity of Nature & Evolutionary Stable Strategy,* sails over perilous seas of thought and grapples with the "difficult type of intellectual activity" foreshadowed by our **EPIGRAPH**; thus readers unfamiliar with game theory and those in search of greater methodological details may wish to refer to Funk 2010a, because this 21-page whirlwind tour of the struggle for life on earth frames the problem of sustainable economic development in the light of evolution and noncooperative games. But this challenging climb offers a fine vantage point: we reach the crux and discover the true nature of the noncooperative game of life on earth: an informed quest for long-term human survival requires splitting resources and efforts between two essentially conflicting and counter-productive objectives (Maximum Ecological Preservation and Maximum Economic Development), and, alas given the physical nature of the expanding universe in which we live, it is impossible to determine how much to allocate to each strategy over time. The impassable difficulty lies within the observation that we can not nor will ever be sufficiently informed to understand how much or how many relatively 'ecologically degrading' economic activities have been and always will be required in our necessarily never-ending race to formulate and develop solutions to the most threatening existential risks.

Indeed, this highlights the disquieting nature of the Prisoner's Dilemma (of which, more to follow). But all hope is not lost; this dilemma does not negate the existence of Evolutionary Stable Strategy (ESS, *cf.* Maynard Smith 1982), that is, the strategic equilibrium (*cf.* Nash 1950) explored in **Chapter IV**.

This chapter also chronicles a few key personal intellectual developmental details worth mentioning. Your Author, Dear Reader, developed much of the theory presented herein (**Chapters I-IV**) in Canada, prior to commencing his PhD research in Malta. This research had begun with what may be accurately be described as an "Alice-in-Wonderland" worldview[$]; however, due in no small part to a powerful, island-based curriculum, encouragement from fellow students and faculty alike, and the Author's own sheer will, fortitude, and relentless problem-solving pursuits, this worldview was reluctantly shed as a hyper-realistic, evolutionary world-view rapidly evolved. And, if Judd's conjecture (*cf.* Cohen 2010) freights truth, the Author hopes our thesis may help reciprocate by imparting the same medicinal effect upon his Canadian friends that he has so gratefully received while in Canada.[£]

Chapter IV presents the main event and a revolutionary solution to the most long-standing, open problem in economics: a tenable theory of value. *On the Truly Noncooperative Game of Island Life: Introducing a Unified Theory of Value* & *Evolutionary Stable 'Island' Economic Development Strategy,* 113-pages chock-full of theoretical content and narrative wonder, sets off in search of "the unity of nature", a course charted by Alexander von Humboldt and followed by every great naturalist since.

Although it may be well known that Darwin and Wallace developed their theories independently, yet at roughly the same time (Darwin & Wallace 1858 ; *cf.* Gardiner 1995) – Wallace, during his travels through the Malay archipelago, and Darwin, during his grand circumnavigation onboard the *Beagle*. But what may not be commonly known is that Darwin and Wallace had the same instructor in the art of island studies. Indeed, both traveled with treasured copies of von Humboldt's *Personal Narrative of Travels to the Equinoctial Regions of the New Continent* (Helferich 2004).

Both also testified to the primary role von Humboldt played by inspiring their travels and, moreover, their quests for "the unity of nature". Thus, despite the fact that subject matters (including 'economics' and 'island studies', for example) do not exist (Popper 1956b), I submit that the collection of problem-solving tools referred to as 'island

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$ Counselor of the Department of State Eliot Cohen and CSIS Director Jim Judd in Ottawa on July 2 discussed threats posed by violent Islamist groups in Canada, and recent developments in Pakistan and Afghanistan. (CSIS is Canada's lead agency for national security intelligence.) Director Judd ascribed an "Alice in Wonderland" worldview to Canadians and their courts, whose judges have tied CSIS "in knots," making it ever more difficult to detect and prevent terror attacks in Canada and abroad. The situation, he commented, left government security agencies on the defensive and losing public support for their effort to protect Canada and its allies (Cohen 2010).

£ The results of failure in politeness, however bad from the point of view of social occasion, are admirable from the point of view of dispelling myths. There are two ways in which our natural beliefs are corrected: one the contact with fact, as when we mistake a poisonous fungus for a mushroom and suffer pain in consequence; the other, when our beliefs conflict, not directly with objective fact, but with the opposite beliefs of other men (Russell 1928, pp 17-18).

studies' were founded with the publication of this monumental work in 1814; or, perhaps, it may have been Low, White, Pennant, Forster, or Banks:

> George Low of Orkney provided, together with Gilbert White, a significant part of the biological information used by pioneering travel writer Thomas Pennant, who was a correspondent of both Joseph Banks and Linnaeus [Pennant dedicated his Tour in Scotland and Voyage to the Hebrides (1774–76) to Banks and published Banks's description of Staffa, which excited much interest in islands; Banks had travelled with James Cook and visited many islands; Georg Forster, who followed Banks as naturalist on Cook's second voyage inspired Alexander Humboldt, who in turn Darwin treated as a model] (Berry 2009 ; *cf.* Helferich 2004).

But whomever it may have been, Humboldt certainly towers over the pages of natural history, and *Humboldt's Cosmo's: Alexander von Humboldt and the Latin American Journey that Changed the Way We See the World* (Helferich 2004) tells Humboldt's story incredibly well and, moreover, captures the essence of Humboldt's method, Darwin's method, Wallace's method, Mayr's method, Gould's method, and it most certainly charts the course I have followed (see **Chapter I**, **EPIGRAPH**; methodological details are presented throughout **Chapter IV** and its appendices). **Chapter IV**, **APPENDIX I** also features a handy **GLOSSARY** which offers careful, patient descriptions and definitions of specialized terms (such as "Game Theory", "Problem of Induction", "Science", "Scientific Method", "Theory", "Natural Selection", "Denaturalization of Economics", "Austrian Economics", "Mathematics", and "Human Survival").

Note: Key terms that follow throughout the remainder of this introduction are designated with an "*cf.* **GLOSSARY**" citation, which refers to **Chapter IV**, **APPENDIX I**; our aim here is to offer a solution to a big problem which we may wish to reflect upon prior to blasting into theoretical orbit:

> [PROBLEM:] Economic theory has suffered in the past from a failure to state clearly its assumptions. Economists in building up a theory have often omitted to examine the foundations on which it was erected. This examination is, however, essential not only to prevent the misunderstanding and needless controversy which arise from a lack of knowledge of the assumptions on which a theory is based, but also because of the extreme importance for economics of good judgement in choosing between rival sets of assumptions (Coase 1937, p 386).
>
> [SOLUTION:] In… economics the most fruitful work may be that of careful, patient description; indeed this may be by far the largest domain for the present and some time to come….
>
> Economic problems [are often] not formulated clearly and are often stated in such vague terms as to make mathematical treatment *a priori* appear hopeless because it is quite uncertain what the problems really are. There is no point in using exact methods where there is no clarity in the concepts and issues to which they are to be applied. Consequently the initial task is to clarify the knowledge of the matter by further careful descriptive work (Neumann & Morgenstern 1944, pp 2-4).

And now that we're ready for launch sequence to begin, let's get back to the bounty of **Chapter IV**. This open letter to the Fellows of the Linnean Society of London presents a comparative study of two diametrically opposed economic development plans, both put into action in that fateful year of 1968 — one on Prince Edward Island, the other on Mustique (*cf.* Goldsmith 1973).

In brief, our axioms and complimentary negotiation model inform us that winning economic development strategy for islands and other "relatively insular states" (RIS –*cf.* **GLOSSARY**) is 'Maximum Ecological Preservation'. We also conclude that "fencing off the commons" may represent the most effective means for achieving this strategy.

The "tragedy of the commons" (*cf.* **GLOSSARY**) is illuminated throughout this chapter, and eager readers may wish to conduct their own comparative analysis of key content from both plans (in the appendices of this chapter); **Appendix VII**, *On the Tragedy of the Prince Edward Edward Island Commons* may also prove illuminating, but the primary focus of this chapter is a short discourse on method. Those interested in combating the commons dilemma as it relates specifically to Prince Edward Island may wish to direct their attention to Funk 2010a for a more in-depth exploration of Canadian constitutional deficiencies, Prince Edward Island's legislative inadequacies, and other deeply entrenched, maladaptive politico-economic behaviours. Darwin's primary focus was not upon the Galapagos, Wallace's primary focus was not upon the Malay archipelago, and, our focus is neither ultimately upon Prince Edward Island nor Mustique. Darwin and Wallace utilized islands to model evolutionary theory at the global level (Mayr 2004, 2001b), and, by the exact same logic, our objective is to utilize these islands to model economic theory at the global level – we're not particularly interested in these islands, *per se*, we're interested in all islands, including that big island we know as earth.

Far more importantly, however, this exhaustive work tables the global solution to the problem of sustainable economic development referenced in **Chapter III**, and in oder to do so, as noted, it also tables a solution to what is arguably the most fundamental and long-standing open problem in economics (*cf.* Stigler 1982). Here, *reductio ad absurdum,* we discover value is a derivative function of relative insularity (Funk 2010d). And this is where the heavy intellectual lifting really begins…

Within the context of our global economic development negotiation model (informed by our revolutionary theory of value), as rational play unfolds, strategic equilibrium (*cf.* **GLOSSARY**) is attained when players pursue respective rational, opposing ESS (*cf.* **GLOSSARY**), offering optimal windfall: RIS-driven ecological protection and Globalized Economic Military Superpower (GEMS. *cf.* **GLOSSARY**)-driven planetary protection. In essence, this noncooperative, strategic equilibrium paves the way for rational, mutually beneficial, cooperative behaviour, yields higher ecological and planetary insularities (*i.e.*, technological developments which offer protection from cosmic, solar, and terrestrial existential threats), and thus maximizes (*i*) economic value and (*ii*) Resource Holding Power (RHP, *cf.* **GLOSSARY** also see "Darwinian fitness"). RIS maximize by pursuing self-interests, by struggling for maximum ecological insularity & economic value (through ecological preservation, politico-economic independence, and self-sufficiency). GEMS maximize (*i* & *ii*) by pursuing self-interests, by fighting for maximum economic development (*i.e.,* 'globalization'), and thus planetary insularity. Surplus value is maximized through strategic transparency: If (*a*) all players recognize the value of respective, opposing, and antithetical, rational strategies and employ the ESS, then (*b*) all players maximize economic value & RHP, negotiate, struggle, fight, communicate, and cooperate more rationally, more efficiently, more peacefully, and thus (*c*) maximum sustainable economic development is achieved and human survival prospects are maximized. This finding offers much support for an unfashionable conclusion reached by Smith (1776).

And at last the heavy lifting is done. It's time to relax and enjoy ourselves a bit.

Thus our pace eases as we head down the home stretch with **Chapter V**, *On the Problem of Perpetual Retardation: An Open Letter to President Barack Obama*.

In short, our objective here is "Consilience" (*cf.* **GLOSSARY**).

The gentle stream of this narrative flow offers visual aids and much-needed comic relief after a long, difficult, perilous march under enemy fire – parable and imagery help synthesize the logical implications that follow from **Chapters I-IV**.

But it's not all fun and games, indeed, the task before us is not easy – in fact it's endless.

The challenge at hand may be summarized like this: If we were to sit down and write a long letter to the President of the United States, in which we endeavoured to patiently, carefully, and meticulously explain several

crucially important logical implications (and the strategies they inform) that follow from our thesis, what would we say?

How might we try to communicate the powerful truths we have discovered?

> Few of the records preserved by the National Archives and Records Administration are quite as grand as the Charters of Freedom, but one type of document is both common and special at the same time—letters. Letters may be mundane, or memorable, personal accounts of our lives at a moment in time. They become noteworthy in a different way when written to public figures, especially Presidents of the United States. Without question, it requires special motivation to sit down and write: 'Dear Mr. President.' This salutation means we have something important to say, and we expect the most powerful person on earth to pay attention to our concerns (Young 2007, p 12).

And yes, we do indeed have something important to say.

This chapter also happens to offer an exquisite book-ending to the theoretical developments presented herein; indeed, exactly two year's to the day, on July 4th, 2008, yours truly mailed a (very) rough outline of the theory presented herein to President George W. Bush (*cf.* Funk 2008b).

As far as content is concerned, we may be surprised to discover that **Chapters I-IV** freight logical implications that inform a very wide-range of strategies, including monetary policy, fiscal policy, the evolutionary stability of the Second Amendment of the U.S. Constitution, the true beauty (and value) of gold, reserve currency selection, leisure-time activity selection, and even weigh in on the theoretical soundness of one political party's ideals over another. Yes, they do indeed speak loud and clearly to these topics and many, many more. In fact, completing this chapter presents a theoretical impossibility because, as noted, our task here is endless:

> When we propose a theory, or try to understand a theory, we also propose, or try to understand, its logical implications; that is, all those statements which follow from it. But this… is a hopeless task: there is an infinity of unforeseeable nontrivial statements belonging to the informative content of any theory, and an exactly corresponding infinity of statements belonging to its logical content. We can therefore never know or understand all the implications of any theory, or its full significance.
>
> This, I think, is a surprising result as far as it concerns logical content; though for informative content it turns out to be rather natural…. It shows, among other things, that understanding a theory is always an infinite task, and that theories can in principle be understood better and better. It also shows that, if we wish to understand a theory better, what we have to do first is to discover its logical relation to those existing problems and existing theories which constitute what we may call the 'problem situation'.
>
> Admittedly, we also try to look ahead: we try to discover new problems raised by our theory. But the task is infinite, and can never be completed (Popper 1974, p 26).

Chapter V's stylistic shift may initially appear puzzling – but please press on into the bitter-sweet symphonics of our *gande finale* with the presumption that there may be a method to the madness; and, rest assured, by the time you reach the beginning of our final chapter, your Author, Dear Reader, will have gained ample trust with all those who have

marched faithfully by his side so deep into enemy territory. "Forward my brethren, drink of the bitter waters, there shall be no going back!" (Desha, 1922, p 490).

You see, synthesis presents a special challenge. The entire theory presented here is wholly encapsulated within the three pages of Funk 2010d, but those pages may prove too abstract for most readers: our cognitive faculties are conceptual, and thus **Chapter V** may help synthesize **Chapters I-IV**, and bring these wide ranging abstractions (and far-reaching politico-economic implications) into our perceptual awareness:

> The source of art lies in the fact that man's cognitive faculty is conceptual – *i.e.*, that man acquires knowledge and guides his action, not by means of single, isolated percepts, but by means of abstractions….
>
> Art is a selective re-creation of reality according to an artist's metaphysical value-judgments. Man's profound need of art lies in the fact that his cognitive faculty is conceptual, *i.e.*, that he acquires knowledge by means of abstractions, and needs the power to bring his widest metaphysical abstractions into his immediate, perceptual awareness. Art fulfills this need: by means of a selective re-creation, it concretizes man's fundamental view of himself and of existence. It tells man, in effect, which aspects of his experience are to be regarded as essential, significant, important. In this sense, art teaches man how to use his consciousness. It conditions or stylizes man's consciousness by conveying to him a certain way of looking at existence (Rand 1969, pp 17-45).

In reality, that is all that need be said in defense of artistry, poetics, imagery, and the communicative power of myth. However, the story is told of a Master's thesis defense wherein one curious candidate was once informed that such a mix-and-match methodological approach was unacceptable. Alas, he lamented that his most powerful arguments had fallen upon deaf ears. However, much to his delight, he discovered that this had not been the case: Preston (2011) assured him that all those in attendance had grasped the great significance of the nonexistence of "scientific method" (*cf.* **GLOSSARY** ; also see Popper 1945, 1956a, 1959, 1962, 1974, 1992, 1999 ; Hayek 1974 ; Frey 2003). Preston (2011) also noted that the candidate had made it clear that his mix-and-match approach had been employed by every great naturalist since Darwin:

> Darwin was first and foremost a naturalist. His favourite method was also that of the naturalist. He made a series of observations and developed a conjecture from this evidence…. Actually, perhaps the closest to the truth would be to say that Darwin was a pragmatist and used whatever method he thought would bring him the best results (Mayr 2001, pp 488-489).

The weary candidate was also grateful and equally pleased to receive two generous emails (Nabuurs 2011 ; Hayes 2011) later that day, echoing Preston's vote-of-confidence (2011).

But those who remain skeptical of this honoured and time-tested approach may rest assured that the focus throughout our thesis is pure theory; artistic learning aids are few and far between. In fact, to this point, although this

abridgment effectively tables our core argument with economy, and elegant simplicity, be forewarned, some readers may find the long, winding, Funk 2010a (which is, in reality, a very, very long letter of introduction to this thesis) more helpful; as Henry Miller noted:

> In this age, which believes that there is a short cut to everything, the greatest lesson to be learned is that the most difficult way is, in the long run, the easiest (1957, p 12 ; *cf.* Llobera & Sluckin 2007).

But whatever path you may ultimately choose to follow, and whatever climbing strategy you elect to deploy, in honour of our friends at The Lifeboat Foundation and my thesis advisor, Professor Joseph Falzon at the University of Malta, I'd like to extend this warm invitation to press on with the present course by way of prelude:

A few days ago, Frenchman Alain Robert (2011) climbed the world's tallest building (in Dubai).

After the six hour climb, Robert told *Gulf News*, "My biggest fear is to waste my time on earth."

I share Robert's fear – and as we shall discover in **Chapter III**, Alexander von Humboldt, did, too.

But then Robert added, "To live, we don't need much, just a roof over our heads some food and drink and that's it … everything else is superficial" (Ibid).

I'm afraid that's where Robert and I part ways – and if you would kindly join me on a journey through **Chapters I-V,** I would love the opportunity to explain why Robert's assertion is simply not true.

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