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WHAT DOES PHILOSOPHY DO FOR
SPACE JURISPRUDENCE AND
IMPLEMENTING SPACE LAW?
SECULAR HUMANISM AND SPACE
MIGRATION ESSENTIAL FOR
SURVIVAL OF HUMANKIND SPECIES
AND ITS “ESSENCE”

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by

George S. Robinson*

*In question of science, the authority of a thousand is not worth the
humble reasoning of a single individual.*

Galileo Galilei

*Definition, definition, definition...always in specific and well-defined
contexts: An impossible task for the law?*

Anon

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I. GROUNDRULES FOR EXPLORING THE PHILOSOPHIC FOUNDATIONS OF EVOLVING SPACE JURISPRUDENCE AND IMPLEMENTING SPACE LAWS: THE MUCKHOLE¹ OF MODERN COMMUNICATION

Perhaps it won't matter, in the end, which country is the sower of the seed of exploration. The importance will be in the growth of the new plant of progress and in the fruits it will bear. These fruits will be a new breed of the human species, a human with new views, new vigor, new resiliency, and a new view of the human purpose. The plant: the tree of human destiny.

Neil Armstrong, "Out of This World", Saturday Review, 1978

Natural law theory,² component jurisprudential concepts, and implementing positive laws are secular in substance. They are "justified",

¹ The word "muckhole" is a word generally unrecognised by modern English dictionaries, but in slang terminology it has come to characterise making a mess of some activity or manner of communication. In the latter instance, leaving aside the necessity of changes in language to recognise and communicate evolving cultural/societal interactivities, the word "muckhole" as used in the instant discussion is intended to convey a sense of confusion, a lack of clarity and precision, in a more traditional form of linguistics and interpersonal communication.

² The term "natural law" is ambiguous. It refers in one instance to a type of moral theory, as well as to a type of legal theory, but the core claims of the two kinds of theories are logically independent. In one respect, it does not refer to the laws of nature, the laws that science aims to describe. According to natural law *moral* theory, the moral or ethical standards that govern human behaviour are, in some sense, objectively derived from the nature of human beings and the nature of the world. While being logically independent of natural law legal theory, the two theories can and frequently do intersect. There are a number of different kinds of natural law legal theories, differing from each other with respect to the role that the amorphous concept of "morality" plays in determining the authority of legal norms.

The conceptual jurisprudence of John Austin (an analytic philosopher who favoured the analysis of ordinary language, rather than the creation of new technical philosophical terms) provides a set of necessary and sufficient conditions for the existence of law that distinguishes law from non-law in every possible world. Classical natural law theory, such as the theory of Thomas Aquinas, an Italian Dominican friar and Catholic priest, focuses on the overlap between theories of natural law *moral* and natural law *legal*. Similarly, the neo-naturalism of John Finnis, an Australian and pre-eminent legal scholar and philosopher, is a development of classical natural law theory.

In contrast, the procedural naturalism of Lon L Fuller, a noted legal philosopher, who wrote

or not, as underlying empirical data become available and evolve under seemingly endless specific circumstances. For present purposes, the word “secular” refers to measurable, quantifiable, and predictable data about a given object or series of objects and events related and interacting in some fashion, or not.³ The definition and its epistemological evolution will be discussed hereinafter at greater length. The more amorphous definition is “of or relating to worldly things as distinguished from things relating to church and religion...,” i.e., not sacred or religious.⁴

In the instant discussion relating to natural law theory, secularism, and the evolution of space law jurisprudence and implementing positive laws, “science” is defined as:

systematized knowledge derived from observation, study, and experimentation carried on in order to determine the nature or principles of what is being studied... Establishing and systematizing facts, principles, and methods, as by experiments and hypotheses... Knowledgeable of the world of nature and the physical world.⁵

This definition of “science” is replete, of course, with its own vague terms in non-specific contexts used to describe the discipline; e.g., “nature,” “principles,” “systematizing,” “facts,” and “methods.” As an example, the word “systematizing” implies itemising, but without necessarily making these actions interrelated in given contexts.

Use of the adjective “philosophical” in the context of understanding just what space law is and what it is intended to accomplish may give the reader a sense of a loose, and perhaps an overly-personalised, series of discussions about the what, why, and how of evolution of “the law” — particularly as they relate to use of near and deep space dictated or shaped by the functionally and/or operationally unrelated, shifting nature and demands of nation States and

The Morality of Law in 1964, discussing the connection between law and morality is a rejection of the conceptual naturalist idea that there are necessary *substantive* moral constraints on the content of law. Lastly, Fuller’s student, Ronald Dworkin, critiques legal positivism. All of these theories subscribe to one or more basic tenets of natural law legal theory and are important to its development and influence. See “Natural Law”, online: Internet Encyclopedia of Philosophy <www.iep.utm.edu/natlaw>. Nevertheless, in the context of the ensuing discussion, natural law theory, or *jus natural*, is defined without relying on the ambivalent term “morality” which has no role in defining the empirical underpinnings of the bioecological dictates of all life forms; e.g., metabolism, procreation, specimen and species survival in a given physical environment, and the like. See footnotes 26 and 27, *infra*, for further elaboration as to its use in the present discussion.

³ Although it might be said that all forms of energy relate and/or interact in varying degrees of intensity throughout the Universe, and perhaps beyond.

⁴ See *Webster’s New World Dictionary of American English*, 3rd College ed (New York: Webster’s New World, 1988), *sub verbo* “secular”.

⁵ *Ibid*, *sub verbo* “science” at 1202.

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geopolitical alliances on Earth created for a variety of objectives. For this reason, alone, an informed awareness is necessary of what is globally understood, in a general fashion and also in specific ways, to constitute the genesis and development of space law, domestic legislation, and implementing rules and regulations, as well as public and private international law.

As addressed, above, easily recognisable by formulations of law, and objects or subjects of those laws, is the lack of specificity in definitions and contexts of words and phrases. Again, for example:

- A statement of what a “thing” is;
- A statement of the meaning, as of a word and phrase;
- A making or being definite, explicit, and clear.

These definitions, of course, rely on other words, phrases, and definitions themselves, *ad infinitum*. While specific understanding of words and phrases are clearly stated in an equally as clear a context, the more useable the definition of “definition” might be; or, as finally noted in Webster’s New World Dictionary, definition is the absence of “fuzziness”.⁶ Now, is it necessary to define “fuzziness,” and perhaps in the process define “absence” in specific contexts before the ensuing discussion has any meaning? *Res ipsa loquitur*!

Having addressed in a rather “fuzzy” fashion the use of specific definitions in specific contexts to define and explain the basis for relying on the word “philosophy” to characterise rather amorphously the building blocks forming the foundation(s) upon which “the law” rests, and particularly to those relating to humankind use of off-Earth space, the next approach would be to define “the fundamental principle on which something is founded”. And, then, it might be helpful to establish working definitions of “something”, “principle”, “founded”, etc., again, *ad infinitum*. Certain philosophic constructs address the manner in which the objective is achieved.

Despite the seemingly endless and mind-numbing exercise of defining in specific contexts almost every word in a constantly shifting descriptive and/or explanatory phrase/sentence/paragraph, etc., it is necessary for the instant discussion regarding the philosophical foundation(s) of space law to attempt useable definitions in specific contexts of (1) “space”, and (2) “law” – specifically the foundations of these terms in the context of past, current, and a speculative

⁶ The word “definition” means a statement of the meaning as of a word or phrase. *See, therefore, ibid, sub verbo* “definition”.

future form of “space law.” It also is imperative to pursue the exercise constantly keeping in mind that all existence, as it is presently understood, is a manifestation of truly infinite varieties of energy intensities/levels and interactions, from the simplest to the most complex in the form of organised information for the recipient and “interpreter” of that information.

The recipient and interpreter also are extremely complex forms of organised energy information. It is organised information used in varying ways to enhance personal and societal/civilisation survival for the purpose of perpetuating a species’ genome survival and evolution, as well as that of the individual and collective “essences” of that species. The objective, to the extent an objective can be characterised, is one of evolving and continuing the development of the odyssey of trying to comprehend existence as well as the requirement or purpose and need for existence. This idea is not limited to modern humans — *Homo sapiens sapiens* who stands on the shoulders of the first simplistic form of organic, carbon-based life (also embracing a degree of “essence”). It very likely applies to “unique” life forms not yet identified by humans.

II. “PHILOSOPHY” AS A BASIC CONSTRUCT FOR GIVING SHAPE TO, AND AN UNDERSTANDING OF, THE LAWS RELATING TO HUMAN USE OF OFF-EARTH SPACE AND VARIOUS CELESTIAL BODIES

In the long run, a single-planet species will not survive. One day, I don’t know when, but one day, there will be more humans living off the earth than on it.

Mike Griffin, NASA Administrator, “Mars or Bust” in Rolling Stone, 2006

What is being examined here is a relatively quick glance at the philosophical foundation and objective of space jurisprudence and implementing positive space laws. “Philosophy”, by which natural law theory and its breakdown components are studied, offers a series of methodologies to examine, assess, and interpret in a transitorily useful fashion, the yet-to-be-empirically defined properties of existence— particularly as these unknowns impact behaviour characteristics of *Homo sapiens sapiens*, i.e., of modern humans. Religions throughout humankind history are excellent examples of formulating transitory behavioural values of humankind to accommodate the empirically unknown at any given time. Religions also are relied upon to accommodate uncertainties of non-biotic threats, such as meteor showers, tornados, volcanos, methane eruptions, crop failures, and the like.⁷ Religious practices also are relied upon in certain instances, and perceived requirements for selective enhancement of genetic

⁷ Ancient Aztec practices of human sacrifices to appease the gods responsible for crop failures or successes is an excellent example

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coding of certain humankind individuals, societies, and civilisations in competition with one another for survival.

As noted by American biochemist, Isaac Asimov, “[w]e create nothing ourselves, we simply discover deeper applications of natural laws and make use of them in the presence or absence of wisdom”.⁸ And as noted, wisdom, itself, has biologically dictated underpinnings aimed at society, civilisation, and, indeed, species survival. Clearly, there simply is inadequate time and space available in the instant discussion for critical definitions, all within context, for an all too brief philosophical “musing” about the purpose and evolving objectives of current jurisprudence and positive laws relating to the “humanistic” explanation for use of outer space.

There are numerous “philosophic perspectives” regarding why modern humans feel or believe they are compelled to move, i.e., migrate to and settle off-Earth in near and ultimately deep space. The focus for the instant musing is on the evolved and current laws helping to guide the physical movement or biologically dictated migration of representatives of humankind off-Earth to explore, migrate, settle, explore, migrate, settle, mutate and adjust, settle, etc. Migration is critical to all biotic survival, hopefully to continue the ever-evolving odyssey of understanding and putting into empirically-based personal and collective perspective the “What,” “Why,” and, ultimately, the “Who” of Creation.⁹ Migrate, adjust, evolve, survive... or become extinct.

As noted, “philosophy” is a multifaceted discipline, a methodology, indeed, a series of methodologies, to satisfy a multitude of interests, curiosities, and queries. One approach to identifying the nature, the role, of philosophy is to consider it a tool for seeking “wisdom or enlightenment.” Here, however, there is a clear contradiction in this rather popular definition, i.e., the objective of wisdom must flow from enlightenment— two totally different, yet interdependent, objectives.

⁸ Jason A Shulman, “Introduction”, xix in Isaac Asimov & Jason A Shulman, *Isaac Asimov's Book of Science and Nature Quotations* (New York: Weidenfeld & Nicolson, 1988) at xx.

⁹ In this general context of *transhuman* and post-human descendants of *Homo sapiens sapiens*, see by G Robinson, “The Search for Biogenesis and the Lurch Toward Space Law Secularism”, (2009) XXXIV Ann Air & Sp L 645. Note: The emphasis on “kind” in conjunction with the word “human,” i.e., “humankind,” is to emphasise the constantly evolving and transitioning characteristics of *Homo sapiens* referred to as *transhumans* and, ultimately, the biotechnologically integrated post humans embracing an “essence” in the form of constantly evolving abstract reasoning or artificial intelligence *in extremis*.

Another traditional objective of philosophy, as a discipline of inquiry and assessment, is the enablement of meeting adversity with equanimity, or balance and evenness of mind. In a more archaic sense, philosophy is considered the “father of all physical sciences.” Nevertheless, in a rather curious historical sense, philosophy has been considered to embrace the sciences and liberal arts, but “exclusive of medicine, law, and theology”.¹⁰

Philosophy also has been defined as a discipline embracing at its core certain elements of logic, aesthetics, ethics, metaphysics, and epistemology. It is a universally recognised discipline, or a seemingly unique methodology, involving the search for a general understanding of values and reality, chiefly by speculative rather than observational means. These definitions, then, cover just about every amorphous facet of “space” and implementing and/or responding laws, assuming that the term “space” refers to human activities “off-Earth” and their ultimate intended objectives.

A necessary defining of “space” is a bit more demanding and speculative than generally understood. Empty space, i.e., interstitial space, is actually something. It is real enough to move, bend, and be moved about. Space is, in fact, the most abundant “thing”. It might be said rather quaintly that space makes sense of “something that is nothing” since space becomes something in the form of energy without mass.

Sir Isaac Newton speculated that space is the framework in which all physical existence takes place.¹¹ Put somewhat differently, Newton considered space to be a benchmark for all physical existence, all physical activity. But many decades later, Albert Einstein presented the philosophic community with a space theory update, that is, space and time form a unity concept. He characterised space-time, or “spacetime,” to emphasise an interwoven inseparability, much like the stretching and bending of fabric in response to a form of energy he referred to as gravity. Spacetime, as a theory or as an expression of reality, opens up an entirely new way of looking at, and thinking about, the Universe(s). It also sets a heady goal for the establishment of a chronically shifting, adjusting, and developing jurisprudence and sets of implementing positive laws, of “rules of the road,” for human migration to and use of outer space.

Nevertheless, even if the underlying philosophic construct or methodology emphasises seeking “wisdom”, the concept and articulation of “wisdom” is still empirically premised. What is not yet known in that capacity beyond decisions based upon the genome/genetic code and gene sequencing survival imperative of

¹⁰ See Merriam-Webster online, *sub verso* “philosophy”, online: Merriam-Webster <www.merriam-webster.com/dictionary/philosophy>.

¹¹ See I Bernard Cohen, *Introduction to Newton's "Principia"* (Cambridge: Cambridge University Press, 1971).

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an individual biotic specimen, a society, civilisation, or an entire species. This is the jurisprudential reality about which formulators and implementers of behavioural principles regarding the use, and particularly the manner of use, of near and deep space must be familiar, i.e., international and globally-respected laws for the exploration and use of space resources and permanent space migration and settlement of near and deep space. This is not unique to modern humans. Certainly, sub-human simians manifest characteristics of “wisdom” deriving from values employed in various aspects of decision-making for survival. In short, the critical biological dictate for species survival has always required some form of migration, a kind of segue nexus between and among relatively current humankind members, past and present, on the bush of evolution.

When using a philosophic methodology to try to understand and give humanistic meaning¹² to the interactive roles of humankind and outer space, and the values and objectives embodied in the variety of laws relating to space migration, it is essential to keep in mind that *Homo sapiens sapiens* is an integral, but not necessarily the most critical, component in the overall scheme of biological evolution, and of the survival and evolution of the “essence” embodied in that component, to be discussed at a later point, below. But the species is just a component in the entire planetary biosphere, and a transitory one at that. No species has lived forever... yet.¹³ Nevertheless, it also is important to keep in mind

¹² “Humanistic” is the adjective currently describing humanism as:

any system of thought or action based on nature, interests, and ideals of man; specif., a modern, nontheistic, rationalist movement that holds that man is capable of self-fulfillment, ethical conduct, etc., without recourse to supernaturalism.

Webster’s New Collegiate Dictionary, *supra* note 4, *sub verso* “humanism” at 657. This definition, of course, requires several more definitions in specific contexts to give any substantive understanding of “humanism”. For a further discussion of the origins and evolution of the concept of “humanism,” see Subheading III, *infra*.

¹³ Theoretical physicist, Stephen Hawking, is quoted as saying he is an optimist, but that his outlook for the future of man’s existence is fairly bleak. Further, and even more of a dark prediction for the survival of the evolving “essence”, of *Homo sapiens sapiens*, Professor Hawking asserted in an interview with the British Broadcasting Corporation (BBC) that primitive forms of artificial intelligence have proved useful, but that if the current comparatively primitive forms of artificial intelligence are developed to a level that can surpass the intelligence of humans, it “could spell the end of the human race”. The positive side of this dire warning is that artificial intelligence *in extremis* could well be the next evolving generation of humankind in the form of post-humans. He also noted in the BBC interview that advanced artificial intelligence would, not could, “take off on its own, and redesign itself at an ever increasing rate”: see Rory Cellan-Jones, “Stephen Hawking warns artificial intelligence could end mankind”, *BBC News* (2 December 2014), online: BBC News <www.bbc.com/news/technology-30290540>. Further, human biological evolution will not be able to compete and would be “superseded.” See, therefor, online “#5: Stephen Hawking’s Warning: Abandon Earth—or Face Extinction”, *Big Think*, online: Big Think

that biological, and then, biotechnological, evolution based upon competitive genome and genetic coding/sequencing is directed toward sentient abstract reasoning itself, as well as its survivability and evolution.

The tendency too often is to analyse and assess human nature, human “essence” or “soul” in a context that raises humankind/modern humans perhaps much too far above the species’ biochemical and biophysical origins and underpinnings that give direction to our behavioural dictates. Interestingly, when humans, like any other form of animal or even plant life, artificially inseminate specimens to create new species or subspecies for a variety of reasons, often in a fashion to perpetuate and “evolve” further the new species or subspecies, it is difficult to determine whether humans are creating and perpetuating non-natural genetic codings, or whether the original non-human specimen is using *Homo sapiens sapiens* to perpetuate new survival-oriented genetic characteristics of the object specimen. The extent of the interactive nature and interdependence of all life forms is extraordinarily complex with equally as complex and seemingly confusing purposes. And this is what a philosophical methodology is intended to explore and understand, albeit always recognised as a transitional pursuit.

The extent of complexity in the animal kingdom becomes even more challenging, particularly in the context of saving endangered and threatened species, indeed, even in the hominid world. A good example might be the extant resurrection of the genetic coding of *Homo neanderthalensis*.¹⁴ In other words, who or what species is really manipulating the design engineering of whom or what for survival purposes? Who or what is pushing the evolution of humankind into transhumans and, say, post-humans of quasi-artificial intelligence in extremis, for survival off-Earth and in space? And is the effort intended to help ensure continuing the sentient odyssey of discovering and understanding the empirical foundations of Creation and, perhaps, the Creator? Is some form of a philosophical methodology intended to seek and uncover reasonable answers to these questions,

<bigthink.com/dangerous-ideas/5-stephen-hawkings-warning-abandon-earth-or-face-extinction>.

¹⁴ The Neanderthal Genome Project involves a collaborative effort among several scientists, and is coordinated by the Max Planck Institute for Evolutionary Anthropology in Germany and the 454 Life Sciences in the United States. The objective is to sequence the Neanderthal genome, and the research to date has shown some *de minimus* mixture of genes that occurred between certain Neanderthals and anatomically non-African modern humans. According to certain studies of preliminary sequencing, 99.7% of the base pairs of modern human DNA (deoxyribonucleic acid) and Neanderthal DNA genomes were thought to be identical. Humans share approximately 98.8% of DNA with the chimpanzee, but more recent studies of the commonality between chimpanzees and humans indicate that commonality to be 94%, leading to the conclusion that the genetic differences between chimpanzees and *Homo sapiens sapiens* is far larger than originally believed. Nevertheless, the role of shared biochemical evolution is patent. See “The Neanderthal Genome Project”, online: Max Planck Institute for Evolutionary Anthropology <www.eva.mpg.de/neandertal/draft-neandertal-genome.html>.

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and then lead toward the formulation and development of principles of law intended to facilitate answers to these questions? Or does the so-called “Anthropic Principle”¹⁵ really apply, and all of Creation is for nothing more than a kind of passive human and humankind enjoyment? If so, should protection of that principle be the primary objective embraced in, and protected and furthered by, all domestic and public/private international space law regimes?

Lest the jurisprudence and implementing positive laws be overlooked as critically significant components of evolution, it must be kept in mind that “the law” is transitory and empirically premised. In other words, laws are derived from a given jurisprudence or “legal philosophy” which, in turn, is based upon prevailing empirical data. Put a bit differently, “the law” may be considered as including experimental articulations seeking the most effective way to perpetuate and evolve *Homo sapiens sapiens* into a more adaptable species, or subspecies, for survival both on Earth and in space through the critical biological dictate of migration and interdependent survival adjustment activity. As difficult as it may seem in a jurisprudential context, ephemerally defined words such as “moral” and “ethical” have no place in treaties to justify the use or adoption of certain principles in furtherance of what is considered to be “for the benefit of all peoples” as that phrase appears in the various space treaties.¹⁶

Regardless of continuing speculation in certain arenas of scientific inquiry, whatever aspect of various philosophic methodologies is adopted in assessing the critical component(s) of humankind survival through migration off-Earth, and the legal regimes intended to facilitate reaching these objectives, evolution must be defined in part and very simplistically as the constant cycling and re-cycling of atoms and their subatomic components reflected as varying levels of energy in the form of organised information—energy levels right down to the smallest theoretical energy particle referred to as the Planck unit of energy.¹⁷ So,

¹⁵ The Anthropic Principle asserts, among several varieties of assumptions, that in varying degrees humanity holds a special place in the Universe, perhaps meaning the Universe was created solely for human “enjoyment and appreciation”. For a history of the Anthropic Principle, see note 40, *infra*.

¹⁶ See, particularly, the Outer Space Treaty, the opening Preamble of which recognises the “common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes” and the belief “that the exploration and use of outer space should be carried on for the benefit of all peoples...”: *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, 27 January 1967, 610 UNTS 205, 18 UST 2410, TIAS No 6347, 6 ILM 386 (entered into force on 10 October 1967) [*Outer Space Treaty*].

¹⁷ For an interesting discussion of the theoretically smallest particle of energy proposed by Max Planck, see “Planck’s Constant”, online: University of Oregon

philosophy, not unreasonably, might possibly be characterised as a methodology of inquiry serving as the nexus between scientific empiricism and what constitutes transitory definitions of human nature, essence, or soul.

It is up to each individual within the limits of his/her/its physical capacities, and it also is up to the societies in which the individual resides, to define and determine the objective and purpose of human nature, as well as implementing laws and legal systems for all participants, beyond some amorphous concept of curiosity relied upon to justify many space programmes and implementing projects. In this respect, “curiosity” is a manifestation of “basic research”, i.e., knowledge solely for the sake of knowledge, as opposed to directed or applied research that relies for practical purposes on the fruits of basic research. The relative issue of space migration being time critical for survival of the species and of the humankind “essence”, offers a very short transition time from basic research to applied research.

As previously noted, philosophy and its many shifting and transitory definitions constitute a series of methodologies often serving different purposes and/or objectives for “musing” about the nature or essence of humans. In order to be an effective methodology, it cannot disfranchise any empirically-derived aspect of all data from scientific methodology, i.e., basic and directed or applied research data. Also, as previously alluded to, “humanism” is considered a system of thought and action based upon the nature and ideals of humans. It is considered a non-theistic and rationalist thought methodology that “holds... a man is capable of self-fulfilment, ethical conduct, etc., without recourse to supernaturalism”.¹⁸ Yet, in many ways, it also is considered the constantly transitioning substitute for ignorance in the absence of empirical or quantifiable components of human nature, and existence, and, indeed, of all Creation. It can be viewed or thought of as organised traits of “faith” in a natural rationale for Creation.

Despite ongoing speculation in certain areas of the scientific community, it is still reasonable in the instant discussion to assert that no particles of matter or other forms of energy reflecting organised information have been created or destroyed since the beginning of all Creation. There has been, and continues to be, a pattern of re-creation of existing energy and matter manifesting different characteristics. In this context, and at some point in the future of *Homo sapiens sapiens* and its transhuman and post-human descendants,¹⁹ it will be possible to

<abyss.uoregon.edu/~js/21st_century_science/lectures/lec12.html>.

¹⁸ See “humanism”, *supra* note 12.

¹⁹ *Op cit*, *supra* note 9 for a reference to, and description of, *transhumans* and *post-humans*. See, also, by R Lauria and G Robinson, “From Cyberspace to Outer Space: Existing Legal Regimes Under Pressure from Emerging Meta-Technologies” (2012) 33 U La Verne L Rev 219. In this context, see, also, by R Kurzweil, *The Age of Spiritual Machines: When Computers Exceed Human Intelligence* (New York: Viking Press, 1999); and NK Hayles, *How We Became Post Humans: Virtual Bodies in*

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garner a fairly complete understanding of how some of the protohominid predecessors of humans survived, and also why and how some of them became extinct. In the process of reaching this understanding, a result of philosophic inquiry and assessment, more will be learned about the genesis of *Homo sapiens sapiens* and, hopefully, its future in order to prepare more effectively and rationally the species and its biotechnological descendants for the next step in their survival, or the survival of their evolving “essence” and unique nature; and, indeed, the role of space jurisprudence and implementing positive laws.

The philosophy of human exploration, migration, and settlement off-Earth is premised on the survival necessity of “envoys” of *Homo sapiens sapiens*,²⁰ i.e., modern humankind and those specimens in altered biological and/or biotechnologically integrated states, particularly those incorporating artificial intelligence in extremis. This is accomplished, among other approaches (many not yet discovered), through direct and indirect genetic intervention, including the use of recombinant DNA techniques and/or integration of human biology and technology (e.g., through direct pharmaceutical influence, direct viral re-engineering intervention of some gene coding and sequencing, and even a biotechnologically integrated form of teleportation and telepresence, etc.). This implies, indeed necessitates, philosophical musings and inquiries, questioning and assessing what is, what ought to be, and what more likely will be; a methodology that likely will result in a fair grasp of the whether, what, how, and why of humankind evolution and its likelihood of humankind “essence” survival and evolution, or extinction. Nothing is forever, except the varying levels of “philosophical” searching for the what and why of Creation of all carbon-based life forms as we presently recognise and comprehend them empirically.

Philosophical “musings”, questioning and assessing what is in a given context, what ought to be, and what more likely will be will result in a fair grasp, as previously noted, of the whether, what, how, and why of humankind evolution and the likelihood of humankind “essence” survival. Again, nothing is forever, except, perhaps, if “what is” is recognised at the outset of humankind’s ongoing evolution... perhaps in the form of mutation, corresponding adaptation, and ongoing survival to continue relying on the “philosophical” methodology in use while searching for the what and why of Creation. And will the journey of what we now call humankind “essence” be carried on by post-humans embracing that

Cybernetics, Literature, and Informatics (Chicago: University of Chicago Press, 1999).

²⁰ The term and concept of “envoy of [hu]mankind” appeared first in the *Declaration of Legal Principles Concerning the Activities of States in the Exploration and Use of Outer Space*, GA Res 1962 (XVIII), UNGAOR, 18th Sess, UN Doc A/RES/18/1962 (1963) [*Declaration of Legal Principles*], para 9, and was later reiterated in the *Outer Space Treaty*, *supra* note 16, art V.

essence? Will those post-humans, who or which are sufficiently independent sentient entities, provide a new and perhaps unique jurisprudence that will arise from the theory of natural law? Will a jurisprudence deriving from a current understanding of natural law give rise to a carefully articulated and formulated set of mutually recognisable positive laws to establish an interdependent interface with the first universally accepted alien intelligence? Will the principles of “metalaw” then come into play as Andrew G. Haley speculated or, indeed, asserted? ²¹

To assess the “humanistic” characteristics of the state of humankind space migration as it is, and as it will be if the species is to survive, the next step would be to use scientific methodology to consider the impact of accepting “philosophy” as offering the most constructive and useful methodology to understanding an evolving natural law theory and the positive laws intended to facilitate that stage and form of *Homo sapiens sapiens* survival through space migration.

III. ASSESSMENT OF NATURAL LAW THEORY, SECULARISM, AND THE HUMANISTIC ASPECT OF SECULAR HUMANISM AS COMPONENTS OF A PHILOSOPHICAL CONSTRUCT FOR SPACE MIGRATION

RULE NO. 1...and the only immutable rule: natural law theory must be studied, evaluated, and assessed in terms of species survival, and that, in itself, must be premised on the evolving empirically-based understanding of biochemical and quantum physics principles.

If “secularism” is relied on as a basis for interpretation, evaluation, and assessment of natural law theory, indeed as the underlying approach to understanding that theory, and its evolving foundation of increasing accumulation of empirical data, then a working definition of that term—at least for the present discussion—is necessary. The word “empirical”, simply defined for instant purposes, is “relying or based solely on experiment and observation rather than theory”.²² As an adjective, it focuses on obtaining hard facts, but always in specific contexts in which such data is sought and applied.²³

²¹ See, therefor, by G Robinson, “The Biochemical Foundations of Evolving Metalaw: Moving at a Glance to the Biological Basis of Sentient ‘Essence’ ” (2012) 39(1) J Sp L 181.

²² Webster’s New Collegiate Dictionary, *supra* note 4, *sub verso* “empirical”.

²³ For definitions and discussions regarding the natures of “empirical” and “empiricism,” see Subheading VII, below. See, also, by G Bealer & PF Strawson, “The Incoherence of Empiricism” (1992) 66 Proceedings of the Aristotelian Society (Supplementary Volume) 99.

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“Empiricism” refers to:

experimental method; search for knowledge by observation and experiment...a disregarding of scientific methods and relying solely on experience...the theory that sense experience is the only source of knowledge.²⁴

But a sense experience is what gives meaningful/useable understanding of what derives from observation and experiment. If these definitions of “empirical” and “empiricism” are precise reflections of the need for ongoing scientific methodology leading clearly to measurable, quantifiable, and therefore reasonably predictable data – with meaning only in specific contexts – it clearly justifies ignoring endless and inconsistent debates embraced historically in rationalism versus empiricism.²⁵

As will be noted, below, in the quick review addressing evolution of “humanism”, the concept of “secularism” itself has evolved from and into a multitude of varying definitions and uses. The term “secularism” was created in 1841 and originally used by George Jacob Holyoake to refer to the “practice of free thought”.²⁶ Holyoake believed that secularism and atheism were not related, but others argued that atheism was a prerequisite for secularism.²⁷ In 1896, Holyoake

²⁴ *Ibid.*

²⁵ For analyses and discussions reflecting some of the inconsistencies in arguments relating to rationalism and empiricism, see by A Kenny, *Rationalism, Empiricism and Idealism* (Oxford: Oxford University Press, 1986), and B Aune, *Rationalism, Empiricism and Pragmatism: An Introduction* (New York: Random House, 1970).

²⁶ For an excellent short history and explanatory discussion of the origin of the term “secularism” see the discussion by A Cline, “Defining Secularism: George Jacob Holyoake Coined the Term Secularism – Origins of Secularism as a Non-Religious, Humanistic, Atheistic Philosophy”, online: About.com <atheism.about.com/od/secularismseparation/a/HolyoakeSecular.htm>. Cline notes that:

[t]oday, such a philosophy tends to be labeled humanism or secular humanism while the concept of secularism, at least in the social sciences, is much more restricted. The first and perhaps most common understanding of ‘secular’ today stands in opposition to ‘religious.’ According to this usage, something is secular when it can be categorized with the worldly, civil, non-religious sphere of human life. A secondary understanding of ‘secular’ is contrasted with anything that is regarded as holy, sacred, and inviolable. According to this usage something is secular when it is not worshipped, when it is not venerated, and when it is open for critique, judgment, and replacement.

²⁷ An example of this position is reflected in the writings and oratory of Charles Bradlaugh who: ...loved to debate the merits of the Bible with fervent, often well-known, believers. He was a courageous and stirring orator and crowds flocked to hear his verbal duels. Some of the public debates were so lengthy they were conducted over several consecutive evenings. Others became heated, and sometimes the authorities tried to stop him speaking... Before

asserted that:

Secularism is a code of duty pertaining to this life, founded on considerations purely human, and intended mainly for those who find theology indefinite or inadequate, unreliable or unbelievable. Its essential principles are three: (1) The improvement of this life by material means. (2) That science is the available Providence of man. (3) That it is good to do good. Whether there be other good or not, the good of the present life is good, and it is good to seek that good.²⁸

There is no need to explore and argue the virtues of this reasoning, or their absences. Given the date and the lack of empirical data available to make a secular assessment of the term or the practice of “secularism”, it is clear that more recent considerations of the practice need to be explored. Perhaps a more recent definition by Virgilius Ferm (1896-1974),²⁹ in his *Encyclopedia of Religion*, would be helpful, for according to Ferm “secularism” is:

...a variety of utilitarian social ethic which seeks human improvement without reference to religion and exclusively by means of human reason, science and social organization. It has developed into a positive and widely adopted outlook which aims to direct all activities and institutions by a non-religious concern for the goods of the present life and for social well-being.³⁰

Here, again, we need a carefully formulated and empirically-based definition of just what constitutes “social ethic” in a very specific context being addressed.

In short, secularism can be defined and used in both broad and narrow contexts, and with such extremism that it is almost impossible to recognise the definitions come from the same word. Generally, secular is considered “worldly”, however that may be defined and in what specific context, rather than spiritual, i.e., not specifically relating to religion or to a specific religious body. In fact, modern views of secularism consider it to be closely related to one or more modern

the advent of broadcasting, books and magazines were much more widely read than today. So, to spread the word about secularism, Bradlaugh wrote books and pamphlets, including “A Plea for Atheism” (1877), and founded an influential magazine called the *National Reformer*...Bradlaugh will be best remembered however for having founded the National Secular Society, which he did in 1866, and his pioneering work to make artificial contraception widely available to those of all classes.

“Charles Bradlaugh”, online: British Humanist Association
<humanism.org.uk/humanism/the-humanist-tradition/19th-century-freethinkers/charles-bradlaugh>.

²⁸ George J Holyoake, *English Secularism* (Chicago: The Open Court Publishing Company, 1896) at 35

²⁹ See, therefore, V Ferm, *An Encyclopedia of Religion* (New York: New York Philosophical Library, c. 1945).

³⁰ *Ibid.*

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views of humanism. Religionists are adamant about not having secularism embrace sectarian, religious ideals; in other words, there must be a strict separation between secularist governments and church doctrine of religions generally. For the instant author, there is not much difference between humanism and secularism, except to the extent the former addresses not only the empirically understood behaviour of humankind, but also the need for faith, expressed in a variety of forms and institutions, to fill in the gaps where empirical data has yet to be achieved to understand the relation between human existence and the unknown who, what, and why of human existence.

In some ways, there is an imprecise and even amorphous definition of secularism with which to attempt to define and assess “humanism”. Keeping that in mind, much like the secularist, one has to ask just what in fact is “humanism” beyond the quick thoughts previously mentioned? In large part, much like defining “secularism, the definition depends upon the “humanist”, or the atheist, or the pastor, or the ethicist, etc., being asked. Generally, “humanistic”, for purposes of the present discussion, can be defined as embracing “any system of thought or action based on nature, interests, and ideals of man”. And humanism has generally been considered “...a modern, nontheistic, rationalist movement that holds that man is capable of self-fulfilment, ethical conduct”, and the like. Once again, the critical stumbling blocks to a reasonably precise working definition. Must the words first be defined and used to define the words that are used to define “humanistic” or “humanism”?³¹ Perhaps it would be somewhat helpful for present purposes to examine very briefly how a few of the professed humanists define the core and mantle of their related views regarding “humanism”.

Keeping in mind the above caveat that “humanism” has a variety of definitions or functional meanings expressed throughout history, whatever answer is professed is, in itself, an object of confusion. In effect, each definitional variation means a different interpretation of what actually constitutes “humanism.” For example, as discussed by Frederick Edwords, a leading voice for humanism both in the United States and abroad, and as addressed by and reflected upon by the instant author:³²

³¹ For definitions of “humanism” and “humanistic”, see, *supra* note 12.

³² For discussions of the Humanist philosophy, see by F Edwords, “The Humanist Philosophy in Perspective”, *The Humanist* (January/February 1984), online: The Secular Web <infidels.org/library/modern/fred_edwords/perspective.html>. See, also, Edwords, “What is Humanism?”, online: The Secular Web <www.infidels.org/library/modern/fred_edwords/humanism.html>.

- *Literary Humanism* is considered to be a devotion to the humanities or literary culture, e.g., classical Greek and Latin. It also is considered to be the rather ephemeral branches of learning concerned with human thought and relations, as distinguished from the secular sciences.
- Next, is the phrase *Renaissance Humanism*, which embraces the “spirit of learning that developed at the end of the Middle Ages with the revival of classical letters...”. It reflected a renewed confidence in the ability of humans to identify then prevailing understandings of empirically based “facts” in order for humans, themselves, to determine what is factual or true in specific contexts, and what is misleading or blatantly false. At the same time, according to *Webster’s Third New International Dictionary*, *Christian Humanism* developed as a philosophical component of Renaissance Humanism by advocating the self-fulfilment of man within the framework of Christian principles.
- Approaching more closely to a contemporary understanding of humanism is the concept identified as *Western Cultural Humanism*, which reflects the empirical approach, discussed at a later point, herein, in the context of secularism and natural law theory, and finding for the most part its roots in “Ancient Greece and Rome...[and] evolved throughout European history...”. It now forms a large part of the Western approach to science, political theory, ethics, and law.
- And then there is a somewhat open-ended definition or description referred to as *Philosophical Humanism*, i.e., an approach to and/or understanding of individual and collective lives centred or based on human needs or interest, whatever they may be at any given time. Edwords then notes in “The Humanist Philosophy in Perspective” that various sub-categories of Philosophical Humanism include Christian Humanism and what he refers to as Modern Humanism. Not infrequently, *Modern Humanism* also is referred to as *Naturalistic Humanism*, *Scientific Humanism*, *Ethical Humanism*, and *Democratic Humanism*. Corliss Lamont, a leading intellectual and activist advocate of Modern Humanism in the 20th Century, refers to it as “a naturalistic philosophy that rejects all supernaturalism and relies primarily upon reason and science”, but then asserts that it also relies on “democracy and human compassion”.³³

³³ For an excellent discussion of Lamont’s somewhat circuitous “definitions” leading to his views on Modern Humanism, see online: Corliss Lamont Website <www.corliss-lamont.org>. See, also, by C Lamont, “A Lifetime of Dissent,” (New York: Prometheus Books, 1988).

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For the instant author, these ambivalent definitions and “philosophical concepts” clearly indicate that religious doctrines, to the extent they evolve hand-in-glove with experience and empirically-based knowledge, fill the gaps in quantifiable and predictable observations inherent in the methodology of secularism. More concisely, theological concepts and doctrines move toward what is commonly referred to as “secular humanism”. From this perspective, it might well be concluded that secular humanism is a methodology constantly evolving from Natural law theory, and expressed in evolving jurisprudential concepts deriving from that theory. These concepts then give birth to interim principles and bodies of positive or implementing laws, such as “space laws” that implement a new jurisprudential concept relating to humankind occupation of off-Earth space and celestial components — a jurisprudence not yet well defined.

IV. THE NEXT STEP FOR THE SPACE LAW PHILOSOPHER: UNDERSTANDING THE GENESIS OF NATURAL LAW THEORY AND ITS EVOLUTION BASED UPON SCIENTIFICALLY-DERIVED EMPIRICISM

Before turning to a philosophical assessment of the role of law, specifically the role of space law, in the evolution of domestic, international, and global efforts to initiate and sustain human exploration, migration, and incremental settlements of near and deep space, a relatively quick observation by Louise Leakey may put the speculative exercise in a somewhat personally “tangible” perspective.³⁴ She manages to put in a somewhat frightening, but certainly impelling, perspective the unfolding human migration to space as a biological imperative for survival of the human species:

The last 50 years has shown an enormous increase in human population, but also extraordinary leaps in technological innovation... What the fossil record does do is to force us to contemplate our place on the planet. We are but one species of several hominids that inhabited planet earth and like our distant cousins who went extinct fairly recently, our time on planet earth is also finite. It won't take much to tip the balance against us.³⁵

³⁴ Louise Leakey is the granddaughter of Lewis and Mary Leakey who, together, pioneered research at the Olduvai Gorge in East Africa. Their research, with the discovery of the remains of *Zinjanthropus*, initiated a careful study of the ancestors of *Homo sapiens sapiens* who ultimately migrated out of Africa for survival purposes, i.e., avoiding impending extinction of *Homo sapiens* nearly 75, 00 years ago.

³⁵ See, by L Leakey, “WATCH: Is the Human Race in Danger of Becoming Extinct Soon?”, *Huffington Post*, online: www.huffingtonpost.com/louise-leakey/human-

If the underlying philosophic construct used to explain and justify humankind migration to space is the biological opportunity for ultimate survival of the human species and/or its essence, then the laws relating to the movement to space must reflect that impelling necessity, that driving construct. Understanding the empirical foundation of evolving natural law theory and its impact on shaping the next generation of “space law” is critical for a realistic philosophical assessment of how those laws must be changed to have a reasonable assurance of successful migration for species survival purposes.

Among a confusing variety of reasons to focus on natural law theory as the foundation of all jurisprudential concepts and specific implementing positive laws is that the theory embraces a transitional, empirically-based, quantifiably predictable, understanding of existence. In other words, it is energy in the form of organised information for biological life forms—including *Homo sapiens sapiens*—to process biochemically in a fashion that, ultimately, will lead to an objective understanding of the *what*, *why*, or even perhaps the *who* of all empirically-premised Creation. Humanism, in the form of relying on the nature and predictable behaviour of humans, fills in the transitional gaps in the empirically driven journey toward this objective. It might well be referred to as a collective species journey through biochemical evolutionary transitions. The difficulty in understanding much of philosophy and the evolving theories of natural law is the egregiously slow evolution of language, which itself shapes in a less than clear and erudite fashion the philosophical “musings” of empirically-based and constantly transitioning theories of natural law.

It is generally accepted that “natural law”, or *jus naturale*, was relied on principally by Roman jurists of the Antonine age when they engaged in philosophical speculations. For the most part, it was considered a system of

...rules and principles for the guidance of human conduct which, independently of enacted law or of the systems peculiar to any one people, might be discovered by the rational intelligence of man, and would be found to grow out of and conform to his *nature*, meaning by that word his whole mental, moral, and physical constitution.³⁶

This definition is an excellent speculation in a philosophic context, given the comparatively minimal level of empirical knowledge at the time regarding the biochemistry of the whole body physiology of the human species and its evolutionary history. The departure from that philosophical construct was the Stoic doctrine that asserted life was ordered according to the dictates of nature, which, in turn

extinction_b_3543036.html?utm_hp_ref=tetwee>.

³⁶ *Black's Law Dictionary*, 4th ed, “*jus naturale*” (St Paul: West Publishing Company, 1951) at 1177.

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...rested upon the purely supposititious existence, in primitive times, of a 'state of nature;' that is, a condition of society in which men universally were governed solely by a rational and consistent obedience to the needs, impulses, and prompting of their true nature, such nature being as yet undefaced by dishonesty, falsehood, or indulgence of the baser passions.³⁷

In other words, absent certain secular reasons for specific types of behaviour, the humanist relied on such detached and ambivalent terms as "undefaced", "dishonesty", "falsehood", or "baser passions".

Before shifting to the transitional history of natural law theory from the Antonine era and the Stoic doctrine, it might be helpful to address what likely will be, or must be, the primary objective of *humankind* space migration. First, as alluded to previously, use of the word *humankind*, with emphasis on "kind", is intended to highlight the hominid and protohominid evolutionary shoulders upon which *Homo sapiens sapiens*, modern mankind or modern humans, stand. It also is intended to emphasise the *transhuman* and, indeed, *posthuman*³⁸ entities incorporating biotechnological integration to the point where human descendants ultimately may be considered totally separate and independent self-replicating and metabolising sentient entities with whom or which modern humans must interact in the context of "metalaw".³⁹

The principal focus, for the moment, of natural law in a *quasi*- theoretical sense, is upon technological and biotechnological integration that will transform the subject of the theory of *jus naturale* into a unique evolutionary entity that survives both on Earth and off-Earth. But natural law theory must be addressed both empirically as well as assessed philosophically, i.e., in the context of *humankind* survival, but for what ultimate purpose? Indeed, must there be an

³⁷ *Ibid.*

³⁸ See *supra* notes 9 and 19.

³⁹ For an early recognition and discussion of the biochemical foundations of space law, particularly as it relates to metalaw and the evolving definitions of the metalaw concept, see by G Robinson "Ecological Foundations of Haley's Metalaw" (1969) 22 J British Interplanetary Society 266-, and by Robinson, "The biochemical Foundations of Evolving Metalaw: Moving at a Glance to the Biological Basis of Sentient "Essence"" (2013) 39(1) J Space L 181. As referred to in note 8, *supra*, Stephen Hawking has frequently stated that advanced artificial intelligence could out-invent human researchers and develop weapons that humans could not even comprehend. In other words, humans who are limited strictly by slow biological evolution would not be able to compete with its biotechnological descendants who or which self-replicate and design their own advanced evolutionary offspring. Previously, Albert Einstein observed that "[i]t has become appallingly obvious that our technology has exceeded our humanity", however that last term is defined and in what context.

ultimate – even intermediate – purpose for survival of the human species and its biotechnological descendants? Is there an “ultimate” purpose for the survival of humankind sentience... of abstract perception and reasoning? Of a complex *raison d’être* for the ongoing evolution of biotically-embraced different levels of “essence”? Is it that the evolutionary journey is as important, perhaps more so, than the end result? And therein lies the importance of the nature and characteristics of constantly evolving “faiths” incorporated in definitions of humanism, and the critical importance of the laws formulated to ensure that evolutionary journey through a successful migration off-Earth.

Following from this, there first must be a reassessment of the Anthropic Principle⁴⁰ in the context of space migration and humankind evolution to use that methodology for survival of the “essence” of the human species. In assessing that principle, a variety of questions must be asked and explored: E.g., is there a reciprocal enhancement/destruction relationship between humankind and its evolutionary biotechnological descendants and space law indeed all law? Is it critical to a realistic philosophical assessment of the evolution of natural law theory that the interactive roles of evolving theologies and secularism be reviewed as well? Can it be assumed that the role of “Humanism”, of a *faith* in the laws of nature in the absence of empirical data to the contrary, and its different forms of practice is to give *Homo sapiens sapiens* progressive interim motivation for survival objectives, and survival through evolution toward a secular, empirically based understanding of the reason for evolving sentience? Put somewhat differently, and in a different context, must space migration, space jurisprudence(s), and implementing positive space laws embrace an even greater construct than just species survival, i.e., “survival for *what purpose?*”

Again, must we question whether these legal philosophies and implementing bodies of positive laws are or will be enduring in the context of attempting to assure the ability to seek a yet empirically unfathomable “purpose” for individual and collective survival? Is the collective “seeking” that which gives meaning to the physical imperfections, and perhaps unique characteristics, of individuals in that collective seeking? Is it possible that the role of “humanism” is to give *Homo sapiens sapiens* a progressive interim motivation for surviving, and survival through

⁴⁰ The Anthropic Principle was proposed in Poland in 1973 by Brandon Carter during a special week series of symposia commemorating the 500th birthday of Copernicus. Carter proposed that the very existence of *Homo sapiens sapiens*, of modern humanity, was proof that humanity did, indeed, hold a special place in the Universe, just the opposite of what Copernicus asserted and which is now a generally accepted theory. Carter went on to compromise his original assertion that the Universe was the playground for humanity, and proposed the Weak Anthropic Principle asserting that the Universe and its properties were sufficiently large enough to support carbon-based biology other than on Earth; and later proposed the Strong Anthropic Principle that “the Universe must have those properties which allow life to develop within it at some stage in its history”.

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evolutionary steps toward a secular and progressively empirically-based understanding of the reason for an evolving sentience? If space migration is intended to assure the continuation of the odyssey of the humankind “essence” to answer these questions, then the failures and successes to date of all forms of “space law” must be assessed philosophically as well as in the context of the history and current components of natural law theory.

V. HUMANISTIC PURSUITS IN THE FORM OF RELIGIONS: INTERDEPENDENT AND NOT CONFLICTING WITH NATURAL LAW

When referring to “natural law” in the contexts of a variety of theologies, for example, the phrase is intended to embrace and reflect the laws of nature or the prevailing status of the empirical understanding of those laws that control and “dictate” the material Universe. These “laws” are the measurable, quantifiable, and predictable reactions/interactions/reactions *ad infinitum* of all forms and levels of organised energy that, as noted previously, constitute information of varying degrees of applicable significance at any one time to the receiver and interpreter of that information for whatever purposes. Natural law, to the Roman jurists, identified the various measurable, and yet to be measured, activities that give form and meaning to the material Universe for the recipient, which is understood to mean everything that constitutes the universe(s).

For the disparate types of carbon-based life, these forms and meanings of natural laws include self-preservation and even altruistic characteristics to individuals that are aimed at the preservation of the species and/or its particular societal groupings, of which the single specimen is an integral component. Frequently, and more likely incorrectly, “altruism” is equated with “ethic” as that term is used to justify certain required action or behaviour expectation in a society. “Ethic” is a term relied upon in the formulation of domestic and international laws, both public and private, and certainly is replete throughout various aspects of the body of space law, particularly in the Outer Space Treaty of 1967.⁴¹

⁴¹ The 1967 Outer Space Treaty incorporates such controlling phrases as:

RECOGNIZING the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes,
BELIEVING that the exploration and use of outer space should be carried on for the benefit of all peoples irrespective of the degree of their economic or scientific development [...]

Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, 27 January 1967, 610 UNTS 205, 18 UST 2410, TIAS No 6347, 6 ILM 386 (entered into force on 10 October 1967) [*Outer Space Treaty*], Preamble.

“Altruism”, or in the present instance the sacrifice of a specimen(s) for the survival of the species or a societal component thereof, is found in activities of certain members of the *humankind* species, and it is referred to principally as a moral, ethical, or religious precept. These terms form, in part, the foundation of most religions attempting to characterise the motivating objective of *humankind* survival, including the biological imperative of migration and dispersal. Absent empirical data, most religions define and embrace natural law as the rule of conduct which is prescribed to humans by the Creator in the “constitution of the nature with which He has endowed us”.⁴²

For St. Thomas Aquinas, a 13th Century philosopher and theologian, natural law was considered to be nothing more and nothing less than “than the rational creature’s participation in the eternal law,”⁴³ and the eternal law that is considered to be God’s wisdom, inasmuch as it is the directive norm of all movement and action. Further, as noted in the doctrine of the Catholic Church,

When God willed to give existence to creatures, He willed to ordain and direct them to an end. In the case of inanimate things, this Divine direction is provided for in the nature which God has given to each; in them determinism reigns... In virtue of his intelligence and free will, man is master of his conduct. Unlike the things of the mere world he can vary his action, act, or abstain from action, as he pleases.⁴⁴

But, then, man is not considered a:

lawless being in an ordered universe...the rule, then, which God has prescribed for our conduct, is found in our nature itself. Those actions which conform with...[the tendencies of human nature] lead to our destined end, and are thereby constituted right and morally good; those at variance with our nature are wrong and immoral.⁴⁵

The doctrinal discussion then goes on to assert the very basis of a non-humanistic view of natural law theory, i.e.,

⁴² See, “Natural Law”, New Advent, online: New Advent <www.newadvent.org/cathen/09076a.htm>.

⁴³ *Summa Theologiae*, I-II, 91.2.

⁴⁴ See, “Natural Law”, *supra* note 42. See, generally, Thomas Aquinas, *On Law, Morality and Politics* (Indianapolis: Hackett Publishing Co., 1988) xiii-xxii and 11-83.. For excellent integrating discussions of St. Thomas Aquinas’ views on moral, political, and legal philosophies, see, generally, “Aquinas’ Moral, Political, and Legal Philosophy”, Stanford Encyclopedia of Philosophy, : online: Stanford Encyclopedia of Philosophy <plato.stanford.edu/entries/aquinas-moral-political>.

⁴⁵ “Natural Law”, *supra* note 42.

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[t]he norm, however, of conduct is not some particular element or aspect of nature. The standard is our whole human nature with its manifold relationships, considered as a creature destined to a special end.⁴⁶

Here, the inference, intended or not, is that all aspects of human existence, indeed all existence, are manifestations of interactive empirical data in the form of “organised” information. Every aspect of existence is controlled in nanoseconds or less by measurable energy in the form of transitory, organised information imparted to and shared by all components of existence in varying degrees of directness and intensity.

What is missing in most, if not all, humanistic views and doctrines, of course, is an empirically-based secular definition of “morality” and “ethics”, particularly in the context of the human genome, and all species/subspecies genomes, directed toward specimen and species survival. This definition should always be in relation to the physical characteristics intended to enhance species survival in a constantly fluctuating and interactive environment, right down to the subatomic particles of biochemistry. Again, “altruism” expressed in the behaviour patterns of various forms of animals and plants appears to be directed at the preservation of the whole species genome, and not at the preservation of the individual specimen’s genetic coding.

Interestingly, in the context of natural law, and well-stated in Biblical terms, an example of when humanism and secularism come at loggerheads is seen in the Biblical admonishment that “Thou shalt not kill”. On the other hand, in most legal systems, the taking of a human life is considered lawful under specific circumstances, even obligatory. But what is forbidden by secular or natural law is the taking of life without legally defined justification, i.e., all “unjust taking of life”. Again, the problem of a non- secular definition of what constitutes a “just” taking of life, particularly as an obligatory act, requires very careful definition in any jurisprudence and implementing legal positivism.⁴⁷

⁴⁶ *Ibid.*

⁴⁷ Classic issues relating to appropriate self-defence actions are incorporated in the “stand your ground” laws that exist, or have existed, in various jurisdictions within the United States. The law, based upon statutory and/or common law precedents, essentially provides for individuals to rely on or use deadly force to defend themselves without any requirement to evade or retreat from a dangerous and/or life-threatening situation. Forty-six states have adopted the Castle Doctrine that provides a person has no duty to retreat when his/her home is attacked. Twenty-two states extend the concept by removing the duty of retreat from other locations outside the home, i.e., the “stand your ground” rule. In 1895, the US Supreme Court ruled in *Bear v. US* (158 US 550) that a person

Herein lies the problem of socially amorphous rules of semantics as tools for humanistic or religious-oriented doctrines that are based step-by-step upon some immutable form of divine natural law. It is asserted in the general teachings of theologians that “the supreme and primary principles are necessarily known to every one having the actual use of reason”.⁴⁸ So, are the physical defects brought about, for example, by the vagaries of foetal development (diminishing in doubt with advances in obtaining relevant empirical data) to be ignored in humanistic doctrine? Or is it simply passed off as the subjects and objects necessitating care and giving in a “good Samaritan” context”? Biologically, it is the genetic dictate of specimen and ultimately species dominance/survival.

Again, it is interesting to note a philosophic drift from humanism toward a strictly secularist recognition and understanding of the empirical foundations of existence. In a religious context, natural law is considered the bedrock of all human formulated law, i.e., it “ordains” that man:

shall live in society, and society for its constitution requires the existence of an authority, which shall possess the moral power necessary to control the members and direct them to the common good. Human laws are valid and equitable only in so far as they correspond with, and enforce or supplement the natural law; they are null and void when they conflict with it.⁴⁹

Anyone might be motivated to ask whether, in an entrepreneurial and competitive society/civilisation, laws formulated to enhance and facilitate space migration for species or genome survival, are compromised by relying on parochial or confining terms such as “moral” and “ethical” behaviour/relationships. In common law countries, equity courts determine whether individual and societal relationships conform to principles of natural law and, if they do not, those laws are “set aside” with respect to the specific parties involved, i.e., “it is good to set aside the letter of the law and to follow the dictates of justice and the common good”.⁵⁰ The phrase “dictates of justice and the common good” as perceived by the court of equity involved usually are based not only on prior holdings (in which the same or similar fact situations are extremely rare), but upon humanistic or theistically oriented views, or a combination of both, of the sitting court regarding what constitutes “the common good”. Various proponents

who was on the defendant’s premises when he came under attack and had not provoked the attack or assault, and at the time had reasonable grounds to believe in good faith that the person killed intended to take the defendant’s life or do “great” bodily harm” was not required to consider retreating, but was entitled to “stand his ground” (at 564). It should be clear that no matter how it is justified, self-defence under certain societally imposed constraints is but one component of genome and genetic-coding survivalism.

⁴⁸ “Natural Law”, *supra* note 42.

⁴⁹ *Ibid.* See also Lamont, *supra* note 33 at 5.

⁵⁰ *Summa Theologiae*, II-II, 120.1.

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of the interconnectedness of divine or religious principles and natural law, including the views of St. Thomas Aquinas, struggle to justify disobedience of certain of those principles in specific fact situations; and this struggle is reflected principally in the courts of equity embraced in common law jurisprudence.

Interestingly, the Constitution of the United States changed certain aspects of the interconnectedness shared by natural law and religions. For example, Article VI establishes that document as the supreme law of the land. The very first amendment to that document specifically prohibits the establishment of an “official” religion.⁵¹ Further, it specifically embraces the admonishment that no law can be passed that advances or favours one religion at the expense of another, or prefer a general belief in religion at the expense of atheism or agnosticism. Nevertheless, the concept of disparity or separation between certain humanistic or religious principles and those embraced in natural law theory has, on various occasions, been compromised to a degree by a variety of State and federal courts that have made “reference” in different decisions to “divine natural law”. Further, “many controversial legal disputes are still decided in accordance with unwritten legal principles that are derived not from religion, but from secular political philosophy”,⁵² the latter of which may be more reflective of prevailing awareness of biologically based competition cloaked in such ephemeral language as “fairness,” “equitable”, “moral”, and the like.

VI. JUST WHAT IS NATURAL LAW AND ITS UNDERLYING THEORY?

Despite vague allusions in Black’s Law Dictionary⁵³ to the immutable principles of nature as the foundation of natural law theory, its usefulness is severely compromised once again by reliance on critical words without definition and without specifically-defined contexts. One of the pivotal difficulties in defining the theory, and then trying to identify the principles that give it shape and substance, is that people can never interpret nature identically – no matter how close they may come to it. And in the application of positive laws, fine distinctions in a fact situation can give rise to a decision on either end of a 180 degree spectrum. Consequently, the constantly evolving enlightenment regarding the empirical basis of natural laws that derives from science and scientific methodology makes natural law theory as elusive regarding immutable “facts” as

⁵¹ US Const, amend I.

⁵² “Natural law”, *The Free Dictionary*, online: The Free Dictionary
<legal-dictionary.thefreedictionary.com/natural+law>.

⁵³ See “*jus naturale*”, *supra* note 36

does the basis of philosophic assessments of humanist endeavours – if not simply thrown in the lap of some intellectually transitory supreme being. Even in defining what constitutes natural law as a theory and/or a methodology, descriptive reliance still depends on use of such elusive words and phrases as “fair”, “equitable”, and “morally right”. Despite St. Thomas Aquinas’ view of the progressive scientific enlightenment of the inherent principles and/or components of the nature of existence and their order, he resorted to the position that these “facts” of nature existed because “God put them there”.

It is necessary to keep in mind the underlying issue being addressed in this discussion, i.e., whether space migration for species or genome survival is a global and not domestically parochial undertaking; and whether this recognition would alter international treaties and conventions intended to ensure “fairness” among competing factions involved in space-related activities underlying humankind space migration. Some of the interesting questions that are addressed or arise in the context of this strange philosophic mixture, abiding if not just a bit premature in their revelations, might include the following:

- If biotic competition is critical for evolution and survival, is this applicable also to evolving biotechnology embracing artificial intelligence or abstract reasoning *in progressive extremis*? Does self-replicating and metabolising artificial intelligence *in extremis* embrace the which/who/what of an evolving humankind essence, and if so is it subject to humankind interpretations of natural laws?
- Is there a natural “moral” order embraced in the principles of Natural Law? If so, can “moral” be defined empirically?

Does biological evolution challenge successfully the position that there is such a “moral” natural basis for, or underlying order to, natural law(s) since *Homo sapiens sapiens*, like all presently known organic life forms, has evolved on the basis of genome and/or genetic coding survival requirements; such as migration to better suited ecosystems, e.g., near and deep off-Earth space and biotechnologically compatible celestial bodies?

- What is the purpose or objective from which “moral” principles can be surmised as forbidding such behaviour as rape and murder, etc., when confronted with biological facts about human biochemistry and requirements for individual specimen and species survival? When such behaviour clearly is a component of human biological behaviour?
- St. Thomas Aquinas believed that nature had the orderly rules that it does because God put those rules in place; while Aristotle did not believe a divinely inspired orderliness of nature (a comparatively primitive understanding of “orderliness” in and of nature), and that developing empirical data related to all aspects of biological evolution dictated how

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species developed and evolved out of specimen and species survival requirements. Who was right? Aquinas? Aristotle? Both? Neither of them?⁵⁴

- Are critics of Natural law theory justified in their views that biological and ecological principles involved in the evolution of lower taxonomic orders of animals is different from that of *Homo sapiens sapiens*? That it is solely and uniquely the intrinsic nature of humans to formulate, communicate, and establish substantive and procedural laws of societal behaviour? And that these necessary unique principles and objectives of the lower orders of animals are absent because of comparative biochemical deficiencies and anatomical restrictions in terms of teaching/learning through symbolic communication of a particular nature considered *unique* to humankind?
- Are the two philosophers, Aquinas and Aristotle, who early on were integral participants in seeking to understand the complex laws of nature, at odds over whether Natural law theory pivots on whether God exists?
- Does the “intrinsic” nature of controlling bio-ecological dictates of *Homo sapiens sapiens* make humankind unique when compared with other animals that manifest laws of communal behaviour?

VII. EMPIRICISM: ITS ROLES IN NATURAL LAW THEORY AND PHILOSOPHY

Answers to most of these questions, though not all of them, depend upon recognising and understanding the empirical foundations of *jus naturale*, at any given point in time, i.e., an understanding of scientifically derived empirical data as it develops and becomes available. But, again, just what is empiricism? In one sense it is the knowledge, the scientifically-derived, quantifiable and, hence, predictable, data, i.e., energy in the form of organised information to be interpreted, understood, and used by the recipient. The ability to manifest abstract or sentient reasoning allows for interpretation and usefulness, or not, of the empirical data in specific contexts.

“Empirical” derives from the Greek word *empeiria*, the Latin translation of which is *experientia*, from which the word “experience” is derived. Aristotle viewed the word as “the as yet unorganised product of sense perception and memory”,⁵⁵ a rather common philosophical view of what it means to “conceive”

⁵⁴ See, generally, by Thomas Aquinas, *On Law, Morality and Politics* (Indianapolis: Hackett Publishing Co., 1988).

⁵⁵ Surya Sinha, *Jurisprudence (Legal Philosophy) in a Nutshell* (St Paul: West Publishing, 1993) at 78.

as a product of physiological organisation of the neurologically organised information derived from a seemingly endless variety of interactive stimuli. Retained neurological chemistry, again as organised information, is what memory is premised upon.

Although this brief discussion is only intended to be a provocative lead-in to the empirical foundation of natural law and its relationship to natural law theory as manifest in the formulation of human laws intended to give direction to, and control of, humankind societal behaviour, most people employing an assessment methodology of philosophy rely on this kind of empiricist view. Plato, for example, held the belief at one point that

because of the changeability of the world of sense, sense knowledge lacks the certainty and infallibility that true knowledge must possess. Hence, knowledge cannot be derived from the senses, but only from some other kind of awareness....⁵⁶

This was Plato's interim view, based on the state of empirical data/knowledge at the time, leading toward a more secular and informed view of "knowledge" made available to the recipient through his/her/its "senses".⁵⁷ At least it was a reasonable start to recognising the basic principles of natural law as they become progressively understood and incorporated into useful components of humankind principles of law forming societal/civilisation behavioural standards for individual and community survival—and indeed, survival of an entire species, subspecies, and their evolving descendants.

VIII. GREEK AND MEDIEVAL PHILOSOPHIC MUSINGS ABOUT THE EMPIRICAL FOUNDATIONS OF NATURAL LAW

It is generally accepted that Aristotle initiated the concept of empiricism in a philosophical context. Nevertheless, prevailing ambiguities and lack of quantifiable/predictable data at the time made Aristotle's role in the establishment and development of empiricism, particularly in the context of

⁵⁶ See, therefore, "Empiricism", *Encyclopedia of Philosophy*, online: Encyclopedia.com <www.encyclopedia.com/humanities/encyclopedias-almanacs-transcripts-and-maps/empiricism>.

⁵⁷ The best approximation is that Plato was born in Athens in the year BCE. He was a disciple of Socrates and in his most influential work, i.e., the *Republic*, he discussed the virtues of justice, courage, wisdom, and moderation, both of the individual and the society in which the individual lived or interacted. His various topic discussions led to dealing with the educational aspects necessary for citizens to understand how governments should be formed and allowed to operate, the soul of humans or the "essence" of humans, and what might constitute the "afterlife". In short, the *Republic* is a discussion of the applicability and interpretations of justice, courage, wisdom, and moderation of the individual and his/her interaction with society. The work covers most of Plato's thinking, including his assertion that an ideal State is one in which only philosophers are fit to rule.

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societal rules of behaviour, somewhat questionable, or at least not particularly clear. He seemed to be focused primarily on the “philosophy” of the mind rather than with the interactive components, or laws, of nature.

Epicurus⁵⁸ was considered by many as the first person to declare openly that he was an empiricist, but his focus seemed to be mainly on the “senses” as the source of knowledge. The trouble, of course, was that “knowledge” was never specifically defined in equally as specific contexts, despite his view that sense “perception” resulted from contact between the atoms of the “soul” and “films of atoms issuing from the bodies around us”.

From this point on, the absence of empirical data regarding what constitutes the physical basis, the organised interactive energy genesis giving rise to what Epicurus called “sense” awareness leading to “knowledge”, becomes scrambled; and understandably so, but only from the perspective of currently prevailing empirical data relating to whole body interactive biochemistry. From this point, St. Thomas Aquinas, like Epicurus, began to drift philosophically into trying to define “the soul” without having the knowledge regarding how the “senses” come together through constantly changing (in varying degrees) biochemistry dictated

⁵⁸ The philosophy of Epicurus (341–270 BCE) was a complete and interdependent system, involving a view of the goal of human life (happiness, resulting from absence of physical pain and mental disturbance), an empiricist theory of knowledge (sensations, including the perception of pleasure and pain, are infallible criteria), a description of nature based on atomistic materialism, and a naturalistic account of evolution, from the formation of the world to the emergence of human societies. Epicurus believed that, on the basis of a radical materialism which dispensed with transcendent entities such as the Platonic Ideas or Forms, he could disprove the possibility of the soul's survival after death, and hence the prospect of punishment in the afterlife. He regarded the unacknowledged fear of death and punishment as the primary cause of anxiety among human beings, and anxiety in turn as the source of extreme and irrational desires.

The elimination of the fears and corresponding desires would leave people free to pursue the pleasures, both physical and mental, to which they are naturally drawn, and to enjoy the peace of mind that is consequent upon their regularly expected and achieved satisfaction. It remained to explain how irrational fears arose in the first place: hence the importance of an account of social evolution. Epicurus was aware that deeply ingrained habits of thought are not easily corrected, and thus he proposed various exercises to assist the novice. His system included advice on the proper attitude toward politics (avoid it where possible) and the gods (do not imagine that they concern themselves about human beings and their behaviour), the role of sex (dubious), marriage (also dubious) and friendship (essential), reflections on the nature of various meteorological and planetary phenomena, about which it was best to keep an open mind in the absence of decisive verification, and explanations of such processes as gravity and magnetism, which posed considerable challenges to the ingenuity of the earlier atomists. Although the overall structure of Epicureanism was designed to hang together and to serve its principal “ethical” goals, there was room for a great deal of intriguing philosophical argument concerning every aspect of the system, from the speed of atoms in a void to the origin of optical illusions.

by internal/external stimuli. In other words, all physical influences from interaction with subatomic energy structures influence in turn all levels of organised information received by the components of the brain working in varying degrees of efficiency to provide information upon which the whole body can act for individual and, to a degree under specific circumstances, societally-directed purposes.

IX. FROM DESCARTE AND INNATE IDEAS TO THE ATTACK OF BRITISH EMPIRICISM

Rene Descartes⁵⁹ profoundly affected, and gave catalytic direction to, the next step in what might be referred to as an evolving philosophy of the sensory perception of existence, i.e., British empiricism. The assertion by Descartes that perception and certain aspects of levels of knowledge were innate was, put mildly, extremely controversial knowledge...at the time. If energy is, indeed, organised information, then even the simplest form of life possesses innate “ideas;” and we see this in current research of DNA and RNA up to foetal development in the human womb. Nevertheless, at the time the principal reaction to the concept was establishment of the philosophy embracing the principles of empiricism, i.e., the role of measurable or tangible experience in the formation of thoughts and behaviour patterns.

When assessing the evolution of empiricism, the understandable tendency is to turn to the British empiricists of the sixteenth, seventeenth and eighteenth centuries, i.e., people like Thomas Hobbes (1588-1679), considered by many as the founder of British empiricism, asserting that man is really a machine functioning within a larger machine. Understandably at the time, he also asserted that humans have no “free will,” reflecting an inflexible deterministic view of behaviour.

Other British empiricists include John Locke (1632-1704), often considered the most influential thinker in the Age of Enlightenment; George Berkeley (1685-1753), who professed “all sensations that are consistently together become associated”;⁶⁰ David Hume (1711-1776), the Scottish philosopher and key figure in

⁵⁹ Rene Descartes (1596-1650) was a very famous mathematician, scientist, and philosopher. His views about what constitutes knowledge and its role in “certainty” as well as the relationship between mind and body have influenced much in the way of philosophic empiricism over the past three centuries. He believed that only mathematics gave certain knowledge. For a good overview of Descartes’ theories, see by L Alaness, *Descartes’ Concept of Mind* (Cambridge: Harvard University Press, 2003), and by K Smith, *Matter Matters: Metaphysics and Methodology in the Early Modern Period* (Oxford: Oxford University Press, 2010).

⁶⁰ Essentially, this is an expression of the “Theory of Contiguity” that originated with Aristotle and one of the most influential theories about learning prior to the work of Ivan Pavlov. One definition of the Theory in the context of Aristotle’s Laws of Association is that it is a “series of things in continuous connection, a grouping of parts in contiguous physical contact”. It is one of Aristotle’s Laws of Association, which states that things occurring “in proximity to each other in time or space

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the age of the Scottish Enlightenment, whose philosophical objective was to combine empirical philosophy with the principles of Newtonian science, i.e., the creation of a true science of what it means to be human, of human “nature”; John Stewart Mill (1806-1873), who referred to what he called the science of ethology, i.e., the study of the formation of human character;⁶¹ and Alexander Bain (1818-1903), also a Scottish philosopher frequently considered to be the first “full-fledged” psychologist, and who emphasized the physiology of mental and behavioural characteristics.

In many ways, Locke could be considered an empiricist in the same or similar fashion as Aquinas. While setting the tone of approach to British empiricism, Locke focused on inquiring “into the original, certainty, and extent of human knowledge, together with the grounds and degrees of belief, opinion, and assent.” In many ways, Locke attacked what he considered the non-empirically premised idea of his Greek and Medieval philosophically-oriented predecessors regarding their positions addressing the existence of “innate” ideas... the “doctrine that there may be ideas with which we were born or, at any rate, which do not have to derive from sense experience”.⁶² What this means, according to Locke, is that the brain is *tabula rasa*, a clean slate, and denies that anything can be the subject of conscious awareness, i.e., is consciously “knowable,” without reference to stimuli or some form of “experience.”

X. THE ROLES OF “SENSATIONALISM” AND “POSITIVISM” IN NATURAL LAW THEORY EMPIRICISM

Other philosophical pursuits that offered similar, and at certain points confrontational, views and expressions of an empirical nature, include the Sensationalists, who were materialistically oriented and of whom Descartes is

are readily associated”. Fortunately, the definition, and the words used to form the definition, have become more refined with the discovery of relevant empirically-derived knowledge. See, therefore, “Contiguity”, Askdefine.com, online: Askdefine.com <contiguity.askdefine.com/>.

⁶¹ See, therefore, generally, J Dunn, JO Urmson & AJ Ayer, *The British Empiricists: Locke, Berkeley, Hume* (New York: Oxford University Press, 1992). In this context, it should be noted that in the 19th Century, August Comte (1798-1857), considered by many as the first modern sociologist, offered a view of “Positivism” that embraced and promoted the concept asserting that “real” or authentic knowledge can be based only upon sense experience, and these experiences must be perceivable by others. See, therefore, “August Comte”, *Britannica*, online: Britannica <www.britannica.com/biography/Auguste-Comte>.

⁶² See, therefore, by J Locke, “Essay Concerning Human Understanding” (first published in 1690), online: University of Adelaide <ebooks.adelaide.edu.au/1/locke/john/181u/>.

considered one. Their strong inclination was to assert that the creation of the Universe was accomplished along mechanical lines, and the brain can be explained in the same fashion and with the same principles as Newton described the physical world.

Another French Sensationalist was Pierre Gassendi (1592-1655), a philosopher, scientist, and astronomer in the forefront of formulating the modern scientific perspective relating to skepticism and empiricism. Gassendi strongly opposed Descartes' views in various respects regarding the "possibility of certain knowledge". His objective was to replace Descartes' philosophy of deductive reasoning and dualism with a science based on observation and "physical monism", or the doctrine of reality being an organic whole without independent parts.⁶³

Other "Sensationalists" included Julien Offray de la Mettrie (1709-1751), a French Physician and philosopher, and an early materialist who claimed, rather intriguingly at the time, that the Universe consisted solely of matter and motion. Further, he asserted that man is a "machine" which reflected his view that the universe consists of two components, i.e., matter and motion, and that "sensation and thoughts are movements of particles in the brain". Humans, he professed, as well as other animals, "differ only in degree (of intelligence)".⁶⁴ Two of the "less informed" of the French Sensationalists were Etienne Bonnot de Condillac (1715-1780), who claimed that the brain works on sensations and produces a variety of complex "ideas" and "emotions;" and Claude Helvetius (1715-1771), who regarded the human mind as free from innate ideas and natural dispositions, i.e., a blank slate.

Another facet of empiricism is referred to as "Positivism", i.e., that scientific methodology can only be used to study what can be observed. In this respect, Auguste Comte (1798-1857) professed that humans can never be sure of anything unless it can be observed by the general public.⁶⁵ Ernst Mach (1838-1916) was an Austrian physicist and philosopher who embraced Positivism, i.e., scientific laws are summaries of experimental events that describe "sensations" in more detail than what in reality might exist beyond just sensations. In short, he believed that humans and other animal life forms could "never experience the physical world

⁶³ "Monism", very simply, is the assertion or doctrine that reality is an organic whole without independent parts. See *Webster's New World Dictionary of American English*, *supra* note 4, *sub verbo* "monism".

⁶⁴ For a further description of La Mettrie's views, see, generally, by A Vartanian, *La Mettrie's L'homme machine: A Study in the Origins of an Idea* (Princeton: Princeton University Press, 1960).

⁶⁵ For a general view of August Comte's theory of Positivism, and fascinating personal letters revealing his lifestyle and professional views, see online: Marxists Internet Archive <www.marxistsfr.org/reference/archive/comte/index.htm>.

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directly".⁶⁶

**XI. THE CURRENT STATUS OF NATURAL LAW
THEORY AND ITS INFLUENCE ON THE NATURE OF
POSITIVE LAW**

Current natural law theory is professed by some legal philosophers to embrace the concept that certain laws are basic and fundamental to human nature and are discoverable by human reason without reference to specific legislative enactments or judicial decisions. Natural law is opposed to positive law, which is human-made, conditioned by history, and subject to continuous change. This distinction between natural law and positive laws is erroneous since the latter is an implementing component of the former at any given level of evolving empirical knowledge. The issue will be addressed at a later point herein.

Two types of natural law theory are professed to exist by some academics and philosophers; probably because the term "natural law" is rather ambiguous to expert and layman alike. In the first instance, natural law is said to refer to *moral* theory. But it also applies independently to a concept of "legal theory". In the first instance, the theory of natural law "morality" can be true or false. At times, moral objectivism is equated with moral realism. In any event, not only is the relationship between the two concepts or theories rather controversial, reliance on the word "moral" vitiates any objective analysis and assessment of the validity of both.

What is known, however, is that the "unknown" of what is real remains guesswork until advanced scientific methodology and related equipment allows the increasingly resultant empirical data to inform more objectively about the universe and the basis of existence; more particularly, not until more is learned and understood regarding the biochemical and energy informational underpinnings of carbon based life of *humankind*. This reality is the basis of the second rationale for the absence of the subtending core of natural law "moral" theory, i.e., the assertion that "standards of morality are in some sense derived from, or entailed by, the nature of the world and the nature of human beings".⁶⁷ The operative word here, of course, is "nature", the seemingly never-ending objective of scientific methodology.

⁶⁶ For a discussion of Ernst Mach's views in the context of the philosophy of Positivism, see by G Gutting, *Continental Philosophy of Science* (Oxford: Blackwell Publishers, 2004).

⁶⁷ "Natural Law", *Internet Encyclopedia of Philosophy*, online: University of Tennessee at Martin <www.iep.utm.edu/natla>.

A common view is that humans are by “nature” rational. Therefore, all human behaviour should be *rationally moral*. Again, however, the words are used very loosely and the end results of such assertions are ambivalent at best. Once again, inconsistencies and confusions flow from the absence of definitions, definitions, definitions, and always definitions in *specific contexts*. Nevertheless, the line of reasoning leads ever closer to the recognition of the empirical foundations of natural law and, in turn, the empirical basis of all forms of jurisprudence and implementing positive laws. Many of the so-called natural law *moral* theorists also claim to be natural law *legal* theorists. The fact remains, however, that the two positions are only perceived to be interrelated on the basis of lack of interdependent empirical data.

Manifestations of morality are transitory positions premised on ever-elusive and chronically changing expressions of the relationships of empirical data. That data and their interactive relationships providing constantly changing information to the human recipient jurisperit or lawmaker and practitioner is inherent in the structure and physiology of RNA, DNA, etc. It is the primary component of the human genome; and, like all biological entities, *Homo sapiens sapiens* seeks to compete for favourable ecosystems to ensure genome survival of specimens in a given society and/or civilisation. Migration and dispersal, in the short or long term, are critical components of that biologically dictated survival mechanism. It is a law of biotic/biochemical survival upon which space jurisprudence and implementing positive laws are premised – more often than not unrecognised by the formulators of those positive laws.

XII. ADDITIONAL THEORIES AND POSITIONS RELATING TO NATURAL LAW THAT INFLUENCE THE DEVELOPMENT AND IMPLEMENTATION OF A GIVEN JURISPRUDENCE AND DEPENDENT POSITIVE LAWS, INCLUDING THE REGIME OF “SPACE LAW”

Other philosophic methodologies (seeking to find the true nature, the guiding characteristics, of natural law and natural law theory based on objectivism and a shifting concept of “morality”, generally used and abused to gain some form of “moral” ground in negotiating relationships with competitive specimens, societies, and/or civilisations), include *Conceptual Naturalism*. This is a form of analytical jurisprudence that distinguishes law as a system of normative behaviour principles from other systems of norms, such as “ethical” norms. Once again, the operative word “ethical” needs definition right at the outset, but it’s lacking. John Austin, in focusing on the study of “Conceptual Naturalism,” asserts that Conceptual Jurisprudence seeks “the essence or nature which is common to

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all laws that are properly so called”.⁶⁸ The objective of conceptual jurisprudence is to provide the necessary data and distinctions between what constitutes “the law” and distinguishes it from non-law in all possible ways.

Conceptual Naturalism might be considered a *segue* to analysing and understanding the natural law essence of jurisprudence, but it does offer certain confusion as to its value to a jurisprudential or legal philosophy. However, most other aspects of evolving philosophy of law are more “naturalistic” in character and rely on the technology and methodologies of the scientific disciplines. Natural law theory embraces the position that there is a conceptual relation between law and morality, and legal positivism denies the relationship. Conceptual jurisprudence at a minimum attempts to establish a philosophical bridge between the positivism theory and the empirically quantifiable components of natural law theory at any given point in scientifically-derived data.

A. NATURAL LAW THEORY AND THE OVERLAP THESIS

The Overlap Thesis purports that some type of non-conventional relationship exists between *law* and *morality*. Put somewhat more pragmatically, the thesis is that “law cannot be fully articulated without some reference to moral sanctions”.⁶⁹ Yet, no empirical data is offered regarding what law is, as opposed to what the law is intended to accomplish functionally in a societal context. Further, no empirical characterisation is offered for what constitutes morality, either individually or in a societal context. There are definitions, of course, that are infinitely less ephemeral, to wit, definitions that are biochemically-based; that are biologically-founded in the context of genome or genetic coding/sequencing survival through migration, self-replication, mutation, ecotone adjustment, and survival, or extinction.

Sadly, the underlying justification for all positive laws flowing from various jurisprudential concepts rests on a variety of definitions of moral behaviour but not on a quantifiable, empirical definition of “moral” that can be predictable, even in a constantly transitory or shifting status depending upon the individual or societal circumstances of its applications. Again, “moral” is a word that attempts to make a distinction between right and wrong conduct. But “right” and “wrong” are rather ethereal concepts themselves unless they relate to measurable functions of energy manifest as organised information interacting with organised information seemingly *ad infinitum*. In other words, as will be seen subsequently,

⁶⁸ See, therefor, J Austin, *The Province of Jurisprudence Determined* (Cambridge: Cambridge University Press, 1995) at 11.

⁶⁹ “Natural Law”, *supra* note 67.

“morality” is a constantly shifting measurable trait depending upon its usefulness as a biological characteristic or series of interactive biochemical relationships aimed at specimen or even species survival.⁷⁰

A recognition, understanding, and acceptance of the universality of energy in the form of organised information, and biochemistry as the basis or cause of societal interactive behaviour expressed in the manifestation of positive laws, is critical to understanding and implementing behaviour patterns intended not only for the survival of biological entities (e.g., *Homo sapiens sapiens*) and their societies, but also for the survival and evolution of an entire species, its evolved biotechnological descendants, and their as yet to be unequivocally defined “essences”. This brings the instant discussion to the jurisprudential concept arising from natural law theory that current laws relating to space exploration, migration, habitation, and permanent settlement off-Earth must be reassessed and amended to reflect a species’ responsibility for an integrated global space migratory and settlement undertaking where species survival requires accepting that time and timing are strictly critical dictates.

XIII. SPACE JURISPRUDENCE AND SPACE LAW: ENHANCING THE EVOLUTION AND SURVIVABILITY OF HUMANKIND “ESSENCE”

The study of space societies may have a big dividend on Earth... By studying the problem of space societies we gain a window into not just their future, but our own.

US Supreme Court Justice William Brennan, speech at
Conferences of Judges of US Court of Appeals, 1988

As noted previously, space jurisprudence depends upon its realisation through implementation of daily space law positivisms, domestic legislation and implementing rules, and also the variety of multilateral and bilateral space related public and private international treaties and conventions to facilitate the variety of activities upon which space migration depends. Again, such migration is critical to *humankind* survival and that of its *transhuman* and post human descendants. These various laws and treaties, etc., are critical, also, to the facilitation and enhancement of the space migration and ultimate evolution and survival, or extinction, even of *humankind*’s “essence”.

⁷⁰ For interesting discussions addressing the bridging between moral behaviour and the laws of nature, see by J Finnis, *Natural Law and Natural Rights* (Oxford: Clarendon Press, 1980), and also by that author, “The Truth in Legal Positivism”, in Robert P George, *The Autonomy of Law* (Oxford: Clarendon Press, 1996) 195. See, also, by LL Fuller, *The Morality of Law*, (New haven: Yale University Press, 1964).

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But just what is “essence” in this context of biochemistry and its increasing complexification represented on the organic bush of evolution? Is it empirically-based, tangible and quantifiable? Or is it the classic singular example of the whole being greater than the sum of its parts? To approach an understanding of what constitutes and characterises “essence” embodied in organic life from, say, the most simple form of a single cell or even virus, to *Homo sapiens sapiens*, it is important to review and grasp its meaning in a specific context.

It is reasonable to start with the views of Georg Wilhelm Friedrich Hegel (1770-1831)⁷¹ when attempting to unfold and nail down the meaning of “essence”, regardless of whether from a secularist or humanist perspective, and particularly as it is used in the instant discussion of the evolution, adaptation, and survival, or extinction, of humankind space migration. He, along with J. G. Fichte⁷² and F. W.

⁷¹ Between 1778 and 1793, Hegel studied theology in Tübingen, Germany, where, among other fellow students to become renowned in their areas of interest, it included Friedrich von Schelling, who much in the same vein as Hegel would become a primary leader in German philosophy during the first half of the 19th Century, and who would have a major influence on Hegel’s own thinking. In 1808, Hegel published his first principal work entitled *Phenomenology of Spirit*. He taught philosophy at several universities and, in 1818, he assumed the most eminent position in the world of German philosophy at the University of Berlin. As noted in the Stanford Encyclopedia of Philosophy (see online: Stanford University <plato.stanford.edu/entries/hegel/>), Hegel:

published the *Encyclopedia of the Philosophical Sciences*, a systematic work in which an abbreviated version of the earlier *Science of Logic*...was followed by the application of its principles to the *Philosophy of Nature* and the *Philosophy of Spirit*. In 1821 in Berlin Hegel published his major work in political philosophy, *Elements of the Philosophy of Right*...

During a subsequent more rough and tumble period of Hegel’s professional life, his close friend Schelling, who had become more religious in his philosophical views and writings

criticised the rationalism of Hegel’s philosophy... Hegel himself had been a supporter of progressive but non-revolutionary politics, but his followers divided into left and right-wing factions; from the left, Karl Marx was to develop his own purported scientific approach to society and history which appropriate many Hegelian ideas into a materialistic outlook... Furthermore, the interpretation Schelling offered of Hegel ... helped to shape subsequent generations’ understanding of Hegel, contributing to the orthodox or traditional understanding of Hegel as a ‘metaphysical’ thinker in the pre-Kantian dogmatic sense.

For discussions of Hegel’s evolving philosophic perspectives, see, generally, the following works: *Hegel’s Science of Logic*, translated by AV Miller (London: Allen and Unwin, 1969); *Hegel’s Philosophy of Mind: Being Part Three of the Encyclopedia of Philosophical Sciences*, translated by TF Geraets, WA Suchting & HS Harris (Indianapolis: Hackett, 1991); A Shlomo, *Hegel’s Theory of the Modern State* (Cambridge: Cambridge University Press, 1972); WF Bristow, *Hegel and the Transformation of Philosophical Critique* (Oxford: Oxford University Press, 2007); F Neuhouser, *Foundation of Hegel’s Social Theory: Actualizing Freedom* (Cambridge, Mass.: Harvard University Press, 2000); and KR Westphal, “Hegel’s Phenomenological Method and Analysis of Consciousness” in KR Westphal, ed, *The Blackwell Guide to Hegel’s Phenomenology of Spirit* (Malden, MA: Wiley-Blackwell, 2009).

⁷² See, generally, JG Fichte, ed, *Addresses to the German Nation*, translated By RF Jones & GH

J. von Schelling,⁷³ were a part of the German Idealism period⁷⁴ that followed the phi appeared to be an extraordinarily systematic “idealist” in the many decades of post-Kantian idealism. He elaborated in a very systematic and comprehensive ontology,⁷⁵ and is perhaps best known for his teleological⁷⁶ approach to history, an

Turnbull (New York: Harper and Row, 1968), at 73–74. According to Derek Hawthorne, Fichte (1762–1814), the first of the great post-Kantian German Idealists, is an important figure in the rise of German nationalism – and has often been accused of being one of the founding fathers of National Socialism. Fichte came to nationalism, however, through a very unusual route. He began his career as a follower of Immanuel Kant (1724–1804):

...but found the great philosopher’s restrictions on human knowledge to be intolerable. Famously (or, perhaps, infamously) Kant had argued that we only know things as they appear to us (phenomena), while things as they are in themselves are forever a mystery for us. Moreover, the phenomenal impressions we experience are the product of innate mental structures that ‘process’ the data coming in from the senses, when things-in-themselves act upon us. Thus, we can say that the world as we experience it is partly a construction of our minds. Kant winds up being half idealist, half realist: there really is a world out there, but we only know how it appears to us – and that happens to be a function of how our minds are structured. It is truly ironic that Kant inaugurated a movement – German Idealism – which built upon his philosophy, while really seeking to overturn every philosophical victory he thought he had won. Kant believed that he had conclusively shown that our knowledge is limited to appearances; that we can never know things as they *really* are. He believed he had limited knowledge so as to make room for faith, and had thereby saved morality and religion (a story too involved to tell here). Fichte and the German philosophers who came after Kant and were influenced by him demanded Absolute Knowledge: knowledge of the Absolute, of reality as it truly is.

See, therefor, by D Hawthorne, “Nationalism & Racialism in German Philosophy: Fichte, Hegel & The Romantics”, Counter-Currents Publishing, online: Counter Currents Publishing <www.counter-currents.com/2012/08/nationalism-and-racialism-in-german-philosophy/>.

⁷³ German philosopher Friedrich von Schelling explored the concept of freedom in his 1809 book, *Of Human Freedom*. Immanuel Kant largely inspired his work. Born on 27 January 1775, in Leonberg, Württemberg, Schelling believed the unconscious and conscious are united in artistic creation. Interestingly, his work *Of Human Freedom* asserted that freedom was only real if it was freedom for both good and evil.

⁷⁴ German Idealism was a philosophical movement centred in Germany during the Age of Enlightenment of the late 18th and early 19th Century. It developed out of the work of Immanuel Kant and is closely linked with the Romanticism movement.

⁷⁵ For the present discussion, “ontology” may be characterised as the philosophical study of the nature of being, becoming, existence, or *reality*, as well as the basic categories of being and their relations. Traditionally listed as a part of the major branch of philosophy known as metaphysics, ontology deals with questions concerning what entities exist or can be said to exist, and how such entities can be grouped, related within a hierarchy, and subdivided according to similarities and differences. In current times, the definition has expanded to include knowledge within the domain of computer science and information science. Put somewhat differently, it is the methodology of studying the relationships among the various science disciplines. See *Webster’s Ninth New Collegiate Dictionary*, (Markham, Ontario : Thomas Allen & Sons, 1990) *sub verso* “ontology”.

⁷⁶ “Teleology” may be defined for present purposes as any philosophical account holding that final causes exist in nature. More specifically, it means that design and purpose analogous to that found in human actions are inherent also in the rest of nature. The word has a Greek derivation meaning “end” or “purpose”. Teleology was explored by Plato and Aristotle, by Saint Anselm around 1000

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accounting of history adopted at a later point in time by Karl Marx and changed into a very materialistically-oriented view of history that ultimately metamorphosed into Communism.

At first blush, it might appear that Hegel used the word “essence” in a significantly different fashion than the manner in which it is referenced in conventional circumstances, or even philosophically. Hegel certainly appeared to be an extraordinarily systematic “idealist” in the many decades of post-Kantian idealism. For a long period, Hegel’s thinking was premised on logic. But his philosophic assessments of politics and social principles based on this premise gave way in the 1970s to a broader, perhaps more general, focus on Hegel’s “systematic” philosophic approach. In Hegel’s use of logic, he dealt with “essence” much more differently than it is used in general, as well as in philosophic discussions. The instant discussion, regarding the objective of space jurisprudence and implementing space law principles as enhancements of the underlying construct of species survival and evolution, and that of its “essence” through space migration, requires a closer look at the meaning of “essence”.

It might appear that Hegel used the word “essence” in a significantly different fashion than the manner in which it is referenced in conventional circumstances, or even philosophically. Hegel certainly appeared to be an extraordinarily systematic “idealist” in the many decades of post-Kantian idealism. From the trends in mediaeval philosophy up to that of Kant, the word “essence” was used to describe the inner characteristics of an entity that is elusive and hidden from any empirical and quantifiably predictable discovery of a meaning. But it remains the defining aspect of an entity, whether organic or inorganic. It is what gives meaning and/or significance to any such entity all aspects of matter.

For Hegel, “essence” is the history of how something comes into being and expressed as a notion; at least for organic life. “Essence” is what determines and describes how a notion, an otherwise “abstract” thought, comes into being. A notion or concept, for Hegel, is the consequence of the functions of an otherwise indescribable set of physical interactions, and is the basis for the analysis and “logical” assessment about the notion or concept. Without this genesis and functioning of physical interactions leading ultimately to formation of a notion or concept, even more ephemeral characterisations are relied upon to arrive at

AD, and later by Immanuel Kant in his Critique of Judgment. It was fundamental to the speculative philosophy of Hegel. See *Webster’s Ninth New Collegiate Dictionary*, *supra* note 75, *sub verso* “teleology”.

another vague phenomenon referred to as a “hunch” or “inspiration.”

Attempts to define “essence”, particularly with respect to living organic entities, evolved into explanations of broadening definition potentials of the phenomenon. It became increasingly comprehensive and more explanatory of actuality, although it still fell significantly short of grasping and defining sentience, or abstract notion and reasoning. The defining empirical data at the time, and still currently unavailable *in toto*, lends a distinctly esoteric complexion to what fully characterises “essence”, particularly *humankind* essence reflected in abstract reasoning. Unfortunately, Hegel relied on increasingly vague definitions as analytical components and methodologies became, themselves, increasingly complex despite short or brief advances in slightly enlightening progress in obtaining relevant empirical data and definitions. Explanations of “essence”, in the framework of form and content, cover appearance of “essence” in the context of its subdivisions, i.e., existence and essential relations, cause and effect, interconnections and possibilities of interconnections, contingency and possibilities of relationships forming an “essence” unique to an individual, the effects of reciprocities of relationships, again *ad infinitum*.⁷⁷ Nevertheless, this intellectual poking and prodding of “essence” and what it means, what it does, and how it is described in an attempted tangible fashion throughout relatively modern discourse, the real underlying empirical data of what constitutes the essence of modern humans, their hominid ancestors, and even particularly the cetaceans and certain simians, remains empirically elusive for the moment.

XIV. THE PSYCHONEUROPHYSIOLOGY OF “SENTIENCE” AND “ESSENCE”

Of course, “essence” has many definitions depending upon specific contexts in which the term is used. Drifting from speculation to quantifiable and relatively predictable empirical data brings the discussion of essence to neurophysiology and its dictates as to what constitutes “essence” of biotic entities with the capacity for abstract reasoning, i.e., the speculative as well as empirical foundations of highly individualistic thought formation and “consciousness”. And despite the difficulty in defining exactly what consciousness is and how it works, many scientists are at significant odds over exactly what the word means, what it embodies and how it “works”. Many philosophers and scientists still consider *Homo sapiens* as distinct from its animal predecessors. Rene Descartes, for example, has been blamed from time to time by animal rights activists for the mistreatment of non-human animals when he argued that only humans possess

⁷⁷ For an interesting discussion of Hegelian “essence” thinking and relevant philosophic dictates in the context of capitalism and the current women’s liberation movement, see “The Meaning of Hegel’s Logic”, III: The Meaning of “Essence”, Marxists Internet Archive, online: Marxists Internet Archive <www.marxists.org/reference/archive/hegel/help/mean03.htm>.

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the properties and capacities for “consciousness”.⁷⁸

Thomas Nagel asserted that an organism possesses consciousness, but no one can ever put themselves into the mind of another organism and experience the world in the way it does itself. This comes very close to the “uniqueness” of consciousness in each animal organism, but it does not define itself in a neurophysiologically empirical way. In fact, no definition of consciousness seems to have been reached yet where the majority of those scientists attempting to characterise the concept precisely have agreed regarding just what consciousness is, how it works, and what it represents. It often is defined by terms that are equally as ambivalent, such as:

- *Awareness*: The state or ability to perceive, to feel, or to be conscious of events, objects, or sensory patterns. In this level of consciousness, sense data can be confirmed by an observer without necessarily implying understanding. More broadly, it is the state or quality of being aware of something. In psychology, awareness is defined as a human’s or an animal’s perception and cognitive reaction to a condition or event. Here, again, the approach depends upon separating *Homo sapiens* from its biologically evolutionary predecessors.
- *Self-awareness*: The capacity for introspection and the ability to reconcile oneself as an individual separate from the environment and other individuals.
- *Self-consciousness*: An acute sense of self-awareness. It is a preoccupation with oneself, as opposed to the philosophical state of self-awareness, which is the awareness that one exists as an individual being, although some writers use both terms interchangeably or synonymously.
- *Sentience*: The ability to be aware (feel, perceive, or be conscious) of one’s surroundings or to have subjective experiences. Sentience is a minimalistic way of defining consciousness, which is otherwise commonly used to collectively describe sentience plus other characteristics of the mind.
- *Sapience*: Often defined as wisdom, or the ability of an organism or entity to act with appropriate judgment, a mental faculty which is a component of

⁷⁸ A significant number of scientists as well as the various animal rights activist organisations believe that certain of the cetaceans (e.g., whales and dolphins) possess sentient and sapient characteristics normally ascribed only to humans and their proto-hominid/hominid contemporaries and ancestors. See, for example, P Brakes & M Simmonds, eds, *Whales And Dolphins: Cognition, Culture, Conservation and Human Perceptions*, (London: Earthscan, 2011).

intelligence or alternatively may be considered an additional faculty, apart from intelligence, with its own properties.

Clearly, none of these observations approaches an empirical description of the neuro-biochemical activity that leads to, or results in, a uniquely conscious self-awareness of an individual organism that reflects literally the almost endless biochemical and neurological interactions resulting in an abstract perception.⁷⁹ But is this constrained to biological organisms...particularly when robotic entities are being constructed that possess the ability to recognise or distinguish themselves individually from other robotic or biological entities. Self-recognition implies to some philosophers and scientists an intangible consciousness, i.e., as previously suggested, the whole is greater than the sum of its parts.

Despite attempts to identify and define individuality through some ephemeral sense of unique self-awareness, a great deal of late has been learned in the neuroscience disciplines about the seemingly endless empirical correlations between the biochemistry of brain activity and the subjectivity of an individual organism's consciousness manifestations and experiences.⁸⁰ Ultimately, progress in the neurosciences will hone in on the neurological (and even whole body in certain instances) and empirically measurable characteristics of consciousness, i.e., that sentience, consciousness, and abstract perceptions eventually will be seen to flow from seemingly endless molecular signalling pathways used by interacting groupings of neurons. But *if* some seemingly esoteric defining of "consciousness"

⁷⁹ Research being conducted into the most simplistic, yet most functionally complicated, subatomic particles of measurable energy, i.e., neutrinos, is anticipated to shed light on what might be necessary for, and the genesis of, the most primordial and supreme neutrino ancestor that would go a long way to understanding how and perhaps, ultimately, why all organic life, indeed all matter, in the universe exists. See, generally, by G Hickok, *The Myth of Mirror Neurons: The real neuroscience of communication and cognition* (New York: WW Norton, 2014); and also by Hickok, "Eight problems for the mirror neuron theory of action understanding in monkeys and humans" (2009) 21(7) *Journal of Cognitive Neuroscience* 1229.

⁸⁰ Simply put, neuroscience is the scientific study of the nervous system: see "Neuroscience", *Merriam Webster Medical Dictionary*, online: Merriam Webster <www.merriam-webster.com/medlineplus/neuroscience>. More specifically:

It is a highly active interdisciplinary science that collaborates with many other fields. The scope of neuroscience has broadened recently to include molecular, cellular, developmental, structural, functional, evolutionary, computational, and medical aspects of the nervous system. Theoretical studies of neural networks are being complemented with techniques for imaging sensory and motor tasks in the brain. According to a 2008 paper, neuroscience explanations of psychological phenomena currently have a 'seductive allure', and 'seem to generate more public interest' than explanations which do not contain neuroscientific information.

See "Animal consciousness", Wikipedia, online: Wikipedia <en.wikipedia.org/wiki/Animal_consciousness>. In this context, see, also, by DS Weisberg, FC Keil, J Goodstein, E Rawson and JR Gray, *The seductive allure of neuroscience explanations* (2008) 20(3) *Journal of Cognitive Neuroscience* 470.

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is still considered necessary, the relating of whatever that definition may be directly to measurable and predictable brain activity will continue to remain elusive.⁸¹

Interestingly, describing or defining the qualifications for what constitutes the “essence” of *Homo sapiens sapiens*, can lead to some very current and pressing legal issues flowing from scientific methodologies and resulting enlightenment. An excellent example may be reflected in the issue of if and when a genetically engineered, a physically altered, or pharmaceutically enhanced/alterd individual may no longer satisfy its traditional biological and taxonomic characterizations. Should a person created through parthenogenesis,⁸² or other evolving forms of artificial creation, be considered human in the traditional sense? What impact would the expanding legal and scientific definitions of a human have on the issue or question of post human independence? If independent, with all the components of current definitions of essence, self-awareness, consciousness, and

⁸¹ It should be noted, however, that, even among some neuroscientists, the actual defining of “consciousness” must somehow remain independent and somehow above or separate and distinct from neurological activity. In 2012, certain neuroscientists attended a conference at Cambridge University in the UK entitled “Consciousness in Human and non-Human Animals”. A result of the conference was the “Cambridge Declaration on Consciousness,” which asserted that:

The absence of a neocortex does not appear to preclude an organism from experiencing affective states. Convergent evidence indicates that non-human animals have the neuroanatomical, neurochemical, and neurophysiological substrates of conscious states along with the capacity to exhibit intentional behaviours. Consequently, the weight of evidence indicates that humans are not unique in possessing the neurological substrates that generate consciousness [i.e., self-awareness]. Non-human animals, including all mammals and birds, and many other creatures, including octopuses, also possess these neurological substrates.

See, therefor, P Low, et al, “The Cambridge Declaration on Consciousness”, publicly proclaimed in Cambridge, UK, on 7 July 2012, The Francis Crick Memorial Conference on Consciousness in Human and Non-Human Animals, see online: Francis Crick Memorial Conference <fcmconference.org/img/CambridgeDeclarationOnConsciousness.pdf>. Accompanying this Declaration is the assertion by the Conference participants that:

The field of consciousness research is rapidly evolving. Abundant new techniques and strategies for human and non-human animal research have been developed. Consequently, more data is becoming readily available, and this calls for a periodic reevaluation of previously held preconceptions in this field. Studies of non-human animals have shown that homologous brain circuits correlated with conscious experience and perception can be selectively facilitated and disrupted to assess whether they are in fact necessary for those experiences. Moreover, in humans, new non-invasive techniques are readily available to survey the correlates of consciousness.

⁸² “Parthenogenesis” may be defined as a form of asexual reproduction where an unfertilized egg develops into a new individual in the absence of the male gamete. See *Webster’s New World Dictionary of American English*, *supra* note 4, *sub verbo* “parthenogenesis”.

the like, what impact would that have on intellectual property laws applicable to the design engineer and creator of a post human? What impact would the current definitions of consciousness and self-awareness have on the status of self-replicating post humans relative to the multitude of evolving and mostly contradictory definitions of human life, or organic life generally, as they relate to abortion and when life begins? When does human and post human “essence” begin? When does it terminate? At what point is it considered an integrated extension of human essence? Of *evolving* human essence? Is a human blastocyst with removed stem cells considered a human being? What legal standing would be given to such cells, or their human oriented development? At what point does a post human become independent, or does it remain the property of those who created it? Are post human offspring independent of their human created “parents”? Is the ability to experience “pain”, regardless of how that term is defined, essential to be independent of human “essence”?⁸³ Significantly, if not somewhat ironically, much of these types of inquiries have shifted from a philosophical and/or religious context to reliance on scientific methodology and consequent empirically-based findings.

As noted by Efthimios Parasidis, Assistant Professor of Law at the Center for Health Law Studies of St. Louis University School of Law,

Homo sapiens evolved from earlier hominins, either *Homo erectus* or *Homo ergaster*, who were themselves descendants of *Australopithecus*. Recent studies further suggest that *Homo neanderthalensis*...co-existed with *Homo sapiens* in Europe and elsewhere for thousands of years. Although the extent to which each group interbred or exchanged ideas is unknown, the fact that interbreeding occurred raises interesting hypotheses as to how one species viewed the other....

Further,

...*Homo erectus* exhibited behaviors such as tool manufacture and the use of fire, while *Homo neanderthalensis* fed and looked after severely handicapped members of their communities. Findings further indicate that *Homo erectus* deliberately buried their dead and that *Homo neanderthalensis* treated their dead in a ‘varied, complex, and multidimensional’ manner.

⁸³ See, for example, *Pain-Capable Unborn Child Protection Act*, Legis Bill 1103, 101st Leg, 2nd Sess, Sec 5 (Neb, 2010). Note that the condition referred to as anencephalism deprives some infants of feeling pain, even after birth.

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Parasidis then concludes that these traits are significant since they:

...indicate activity beyond physical necessity, a heightened sense of respect for both the living and the dead...They also indicate a means to communicate, and provide us with hints that some communicating may have concerned the symbolic or semiotic...[T]he brain of *Homo sapiens* includes a developed frontal lobe, which is an area that is intimately involved in functions essential to symbolic thought...which may be defined as the representation of reality through language, imagery, or abstract concepts, has long been viewed as a trait that is uniquely human. In addition to homo sapiens (sic), however, recent findings suggest that *Homo neanderthalensis* also demonstrated abstract thought and symbolic behavior, and that *Homo neanderthalensis*, *Homo erectus*, and *Homo ergaster* each 'questioned their position in the universe'.⁸⁴

Additionally, of course,

...within the genus *Homo*, a variety of traits – such as the development and use of communicative practices and tools, the ability to teach and learn, and the establishment of intricate social groups – are found throughout the animal kingdom.⁸⁵

Quite simply, what this implies is that at least some of the so-called lower orders of animals embrace the capacities of sentience and even sapience, reflecting the strong likelihood that the characteristics and qualities of *Homo sapiens sapiens* “essence” are products of biological evolution; of neurophysiological evolution reflecting the capacity for abstract conceptualisation stemming from consciousness and individual self-awareness. If this is true, then the likelihood remains that modern humans, including their individual and collective essences, are transitional. They are in the process of evolving with an increasing capacity to expedite that transitional evolution, or its extinction, through increasingly complex technology.

While pursuing the secular approach to understanding essence in the specific context of biological survival and evolution, it is equally as critical to focus on the overall evolution of essence itself that is inherent in biochemistry of organic life. Difficult? Yes! Some think it ultimately is impossible. But it is the driving factor behind organic evolution as we presently know it. Besides, as with the unravelling with all true mysteries, “the fun is in the looking”, as is the necessity or not of

⁸⁴ E Parasidis, “Defining the Essence of Being Human” (2012) 13(2) Minn JL Sci & Tech 825 at 836-837.

⁸⁵ *Ibid*, at 836.

species survival.

XV. RECOGNISING THE NEED FOR RADICAL AMENDMENT OF THE CURRENT BODIES OF DOMESTIC AND INTERNATIONAL SPACE LAW

Clearly, the direction of the present discussion is the focusing upon space jurisprudence and implementing positive laws as critical in assisting *humankind* migration off-Earth as a rational activity to protect and encourage the evolution of biological, biotechnological, and perhaps, ultimately, even the bio-technologically embraced “essence” of *humankind*. At this point the biophysical and biochemical composition of *Homo sapiens sapiens* makes it easier for the species, intraspecies, and *specieskind* to communicate this need for perpetuating the evolution of *humankind* “essence”. Unfortunately, the world’s population, even many of those involved in space-related activities, still do not grasp the serious status of a teetering and potentially *global* economic and human population dynamic collapse. Both private as well as public funding of space migration activities must meet the *increasingly time critical circumstances* driving these activities for exploration, migration, settlement, dispersal, and, of course, the opportunity, the chance, for *specieskind* survival.

Other species manifest characteristics and properties of sentience, but pursuing the migration of those species into space is more difficult at this point. The biotechnological status of *Homo sapiens sapiens* manifesting sentience characteristics makes it relatively easier for the present to focus on space migration of *humankind* to ensure the concomitant migration of *humankind* “essence” off-Earth. Again, this is for survival and evolutionary purposes of that extraordinarily sophisticated biochemical function where the neurophysiological whole apparently is, or based on present empirical knowledge, *appears* greater than the sum of its parts.

One of the principal difficulties in addressing the saving of *humankind* and its essence is that the focus is on humans in a taxonomic sense,⁸⁶ and not necessarily in just saving a species with sentience characteristics: e.g., biotechnologically integrated *transhumans* and post humans. The latter characteristics are what evolving laws related to space migration should be formulated to protect, perpetuate, and promote, allowing a reasonable assurance that the “essence” of *humankind* will survive and evolve.

⁸⁶ For purposes of the present discussion, “taxonomy” is considered the science of classification of plants and animals, and other evolving and/or relatively recently recognised kingdoms, based upon biochemical, morphological, genetic, etc., and other characteristics common to each. See, generally, *Webster’s Ninth New Collegiate Dictionary*, *supra* note 75, *sub verso* “taxonomy”.

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As indicated, above, all space law must be formulated around the critical implementation of *humankind* evolution that drives its sentient survival, both in space and on Earth, as a necessary platform to sustain the biology of *humankind*, their essences, and their respective evolutions off-planet. Current and past religions have paved the way for individual and societal groping odysseys to understand in a non-secular sense what Creation and existence mean, and *humankind's* place(s) in that meaning. *Homo sapiens sapiens*, the modern human, has stood and continues to stand on the shoulders of its biological predecessors in transitioning in this quest for understanding from hope and speculation to empirical comprehension, step by step. In an ecumenical or religious context, much like all “primitive” cultures and their representatives which and who take all forms of life to ingest, digest, and egest to survive and then thank and praise the “spirit” of the life-forms sacrificed for that sustenance, *all* life forms must be “praised” for their roles in anthro-sentience and essence evolution.

It cannot be just one or a handful of individuals providing crucial guidance to *currently* modern humans at any given period in history that is essential for the survival of a specimen and/or its interactive society. It ultimately is a contributing factor to the successful evolution of civilisations and, of course, to the survival of the entire species and its *transhuman* and biotechnologically-integrated post human descendants, i.e., who and which migrate to and settle in off-Earth space or on other celestial bodies. The principal facilitating catalyst is the formulation and implementation of space law positivisms based upon an awareness and acceptance of the natural law foundations of all jurisprudential concepts and implementing bodies of positive laws.

Homo sapiens alterios and *Homo alterios spatialis* also stand on the shoulders of their viral and/or one-celled ancestors, which and who evolved into an off-Earth ecotone with the help and direction of the perhaps yet-to-be articulated natural law foundations of its evolutionary dictates; its prehistory survival laws that brought its *humankind* descendants to safeguarding an evolving “essence” in a more survival compatible environment. Space jurisprudence and implementing space laws must be designed to implement and facilitate the underlying philosophic construct for space migration, i.e., species/genome survival and evolution, and the concomitant survival and evolution of biologically-embraced essence. *Homo sapiens sapiens* is not the final step in organic life and its essence evolution. The next step is developing *transhumanism* and post humanism evolution that cultivates its own respective levels and characteristics of essence and its evolution. An empirical understanding of the biotic and biotechnologically integrated characteristics of post humanism is critical regarding the future

evolution of the empirical and seemingly abstract characteristics of “essence”, i.e., relying on the unfolding methodologies presented by philosophic inquiries. Their defining characteristics will serve as the principal catalysts for evolving understandings of what constitutes space jurisprudence and its implementing positive laws addressed toward facilitating *humankind* migration off-Earth.

XVI. CONCLUSION - A CONCERN MORE PREESSING THAN ACCEPTED

The next immediate step for space jurists and the practicing space lawyer to explore and address, perhaps, will be the “who” and the “how” of genome, gene coding and epigenetic sequencing, etc., selection to migrate, colonise, and settle off-Earth in furtherance of *humankind* survival and evolution, and that of its evolving “essence”. But who will be left behind in support of these more permanent “Envoys of Mankind”? This may well be the most contentious issue of all to resolve for the legal as well as science and engineering professions. Who will be selected as the “envoys of mankind”...of evolving *humankind* in its present as well as advanced stages...and who or what will remain in a supporting and sustaining on planet Earth? Must space jurists and practicing lawyers resort to addressing these issues in a philosophic context of what is “moral” and what is “ethical?” Or will they be faced with the biotic and biotechnologically integrated realities of an evolving species and its progressively developing and directed “essence”? Will “Metalaw”⁸⁷ become the daily focus of the practicing space lawyer?

⁸⁷ Metalaw seems to be developing with subtle definitional distinctions. For the most part, however, “Metalaw” may be defined in the fashion asserted in 1956 by a very early pioneering space law practitioner, Andrew G Haley. For him, “Metalaw” is a fundamental legal precept of theoretically universal application to all intelligences, human and extraterrestrial. In 1956, Haley published an article entitled “Space Law and Metalaw” - A Synoptic View”, in which he first proposed his “Interstellar Golden Rule”: Do unto others as they would have you do unto them. Haley rejected the traditional formulation of the Golden Rule as articulated by philosophers through the ages (from Confucius to Aristotle to Rabbi Hillel and Jesus to Abdullah Ansari) because, Haley said, in Metalaw:

...we deal with all frames of existence - with sapient beings different in kind. We must do unto others in different frames of reference ... To treat others as we would desire to be treated might well mean their destruction. We must treat them as they desire to be treated.

According to Haley, we can project only one principle of human law onto our possible future relations with extraterrestrial intelligence (ETI): “the stark concept of absolute equity”. For an excellent introduction to the concept of “metalaw”, see by Adam Chase Korbitz, “A Brief Introduction to Metalaw: Andrew Haley, Ernst Fasan and the Origins of Metalaw”, Metalaw and SETI, online: Metalaw and SETI <metalawandseti.blogspot.com/p/brief-introduction-to-metalaw.html>.

WHAT DOES PHILOSOPHY DO FOR SPACE JURISPRUDENCE AND IMPLEMENTING SPACE LAW?

SECULAR HUMANISM AND SPACE MIGRATION ESSENTIAL FOR SURVIVAL OF HUMANKIND SPECIES AND ITS ESSENCE

As “gently” alluded to in the preceding discussions, and regardless of the philosophic methodology relied upon, the primary objective of all pragmatic space law positivisms formulated to implement the constantly transitioning components and resulting perspectives afforded by space jurisprudence with its roots in *jus naturale*, is the seeking and safe-guarding of the empirically defining traits of individual and societal humankind “essence(s)” or “soul(s)”. And this takes the inquisitive minds to the defining role of the biochemistry and biophysics of neurophysiology, and certainly the yet-to-be determined role of Free Will, of individual conscious decision-making. From there, we seek to obtain an evolving secular definition of abstract perception *in extremis*, and the role it plays in defining humankind “essence” or “soul”.⁸⁸

Perhaps the “final” interim question will focus on how we bring all of this to bear in a constructive and useable fashion on defining the underlying philosophic construct critical to the formulation of space law positivisms, i.e., those everyday implementing laws that space policy-makers and lawyers must formulate and seek to implement as a globally-sponsored interdisciplinary undertaking necessary for the off-Earth migration, dispersal, and survival of humankind, its evolving descendants, and their evolving “essences”, regardless of how that latter term ultimately is defined.

⁸⁸ “Soul” has been defined in seemingly endless ways for equally endless purposes and contexts. For the preceding discussions, however, “soul” has been used interchangeably with evolving definitions characterising the biochemistry and biophysics of neurophysiology and “whole-body” cognitive thinking reflecting the present state of empirical knowledge regarding biotic “essence(s)”. Among other definitions not necessarily applicable in the instant discussions, “soul” has been defined as “...the immaterial essence, animating principle, or actuating cause of an individual life...the spiritual principle embodied in human beings, all rational and spiritual beings...”. See, therefor, *Webster’s Ninth New Collegiate Dictionary*, *supra* note 75, *sub verso* “soul”.