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## HENRY CAREY AND ERASMUS PESHINE SMITH'S ECONOMIC PRINCIPLE: INCREASING HUMAN POPULATION

by Pierre Beaudry, 10/6/2020

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### FOREWORD

The British Imperial idea that the difference between man and animal is a matter of degrees, and that man is merely an improved form of animal is categorically incorrect; animal behavior is not human behavior. During the last 6,000 years of history most human beings were considered as “intelligent cattle.” It was Lyndon LaRouche who fully understood that creativity was the most profound difference that God had created to differentiate man from the animal, because that difference is based on the power of increasing potential relative population-density.

The law governing the increase of human population is, therefore, based on the law which governs the production of unlimited new ideas in science, and in artistic composition, whose purpose is to improve the universe as a whole; and, ironically, that is also the principle which governs the development of galaxies. Thus, as he improves his own humanity, man also produces what is necessary to improve the galaxy as his home.

There are only two species in the universe which can grow indefinitely because they have the same fundamental characteristic of increasing their power over the universe: they are the human species and the galactic species. The question is: what is the significance of bringing those two forces together into psycho-physical parallelism? This connection is not as strange as it appears to be

once you have read Henry Carey's book on [\*Principles of Social Sciences\*](#), and [\*A Manuel of Political Economy\*](#) by Erasmus Peshine Smith.<sup>1</sup>

## MAN'S PRIMARY PURPOSE IN THE UNIVERSE IS TO INCREASE THE HUMAN POPULATION

“In principle, we should know that physical economy is peculiar to human beings. No animal is capable of physical economy. But, economy obviously existed as long as people have existed, because physical economy is essentially the relationship between man and nature, based on a consideration which exists only in man, and in no animals: the power to make discoveries, typified by what we call today discoveries of principle in physical science.” Lyndon LaRouche, [\*What is Physical Economy\*](#), EIR, February 21, 1998, and September 18, 2020, p. 39.

Erasmus Peshine Smith investigated the fact that God had appointed fixed laws of nature so that man could discover their arrangements and stop wandering around blindly by guessing where to go next. Smith made the following statement on the principle of proportionality:

“What a world of barren experiments was saved, for example, when the law of definite proportions was added to chemistry, and men became aware that as oxygen combines with other elements in quantities measured

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<sup>1</sup> According to the American Almanac - [http://american\\_almanac.tripod.com/peshine.htm](http://american_almanac.tripod.com/peshine.htm): “In 1853, Smith wrote A Manual of Political Economy (1853) as a means of popularizing the American System of economics, as opposed to the ‘English economists.’ In 1871, Smith was officially appointed an adviser to the Japanese Meiji government's Foreign Ministry on issues of credit, tariffs, education, and bilateral treaty arrangements with the western powers. Smith's work was decisive in the passage of acts that were the basis for the industrial revolution that occurred in Japan during the period of 1876 through 1886. The Japanese National Bank Act (1872) and the Gold Notes Conversion Bonds Act (1873) were explicitly modeled on the Hamiltonian notions of credit and national banking. The educational reforms that were enacted during this period were specifically based upon Smith's ideas of creating scientific and technological optimism in a system of universal education that was to become integrally attached to Japanese industry and its development.”

by 8, and its multiples, 16, 24, etc., every attempt to effect a combination in other proportions must end in failure.”<sup>2</sup>

Why is it that when oxygen combines with other chemical elements in quantities that are not measured by 8 or by multiples of 8, their results are failures? The reason is because nature obeys fixed laws of transformation, but man does not. Man has the freedom to discover those laws of proportionality and to modify his own laws accordingly in order to improve on nature by improving his mind; that is what is reflected in the American system of Political Economy. The question is how can one discover that this principle of unlimited growth engenders happiness for all of mankind and serves the benefit of the universe in its totality at the same time? Smith posed that question thus:

“Is it possible to construct a science of Political Economy? In other words, are there laws grounded in the constitution of things and of man, fixed and invariable successions of effects determined by the causes which precede them, - regulating the progress of men in association with each other, in extending their dominion over matter and their concurrent improvement in intellect and morals? – and are these laws discoverable?”<sup>3</sup>

The answer to that question is yes, because Smith had already discovered this principle of population growth in the seminal works of Henry Carey. However, in order to answer that question, Smith required the resolution of an anomaly which is that *mind and nature have two different sets of laws which are made to*

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<sup>2</sup> Erasmus Peshine Smith, [A Manuel of Political Economy](#), George Putnam & Co., New York, 1853, p. 13.

<sup>3</sup> Erasmus Peshine Smith, [A Manuel of Political Economy](#), George Putnam & Co., New York, 1853, p. 13. That is precisely what Neil Martin recently reminded me about what Krafft Ehrlicke had in mind for man's “extraterrestrial imperative.” Neil wrote: “One may ask how this relates to people of color. We all have minds. Don't humans like hearing how the mind is inexhaustible? Krafft Ehrlicke said, ‘The power of the mind is far from exhausted – the world and its resources are without limit to a mind willing to grow.’ (Quoted by Marsha Freeman in *Krafft Ehrlicke's Extraterrestrial Imperative*, Apogee Books, Canada, 2008, page 61.) Don't humans want to give to upcoming generations? If people are asking how the space program will benefit them. I will add it will define how man is the highest order of life and not a slave to nature. The idiots who think we should look for life on planets and planets we can inhabit and not develop them are just not thinking about what man is. He is not an animal looking for shelter. Man is the master of the universe.” (Email 9/20/2020.)

*cooperate with each other in a win-win manner.* What is the difference between those two sets of laws? What is the difference between “regulating the progress of men in association with each other” and extending man’s dominion over “the fixed and invariable successions of effects determined by the causes which precede them” as do the laws of nature? *These two species of laws are different, but they are also proportional; that is, human laws are changeable for mankind as the laws of nature are unchangeable for non-human nature.* This is how Smith identified the central anomaly of Henry Carey’s system of Political Economy:

“The strongest instinct of man is that which leads to the increase of population. The European Economists, since Adam Smith, have generally believed that the laws of matter were such as to make the repression of this instinct essential to the prosperity of communities. Their system presents a controlling law of humanity as conflicting with the immutable laws of brute matter. It is impossible for them, upon this basis, to construct a science which contemplates the human faculties as acting freely in accordance with their own laws; and to contemplate them as acting under partial and uncertain restraints is to clog the problem with an insurmountable difficulty.”<sup>4</sup>

What Smith discovered, following in the footsteps of Carey, is that the human mind does not and cannot follow fixed and pre-determined laws of nature as matter, living organisms, and animals do. The key to this difference of principle lies in the fact that man’s primary instinct is to increase the growth of his own population and this is his primary willful purpose in life which is caused by the future improvement of mankind as opposed to repeating its past, because the

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<sup>4</sup> Erasmus Peshine Smith, *Op. Cit.*, p. 17. Henry Carey stated: “The most important factor determining the transition from one level of economic production to another, is the increasing population density. . . . Let us assume that by means of hunting alone, one can feed on one square kilometer of land no more than 40 people; the surplus population will find no food and will die. Only with great effort, does man slowly learn how to tame animals and gradually shifts to a more pastoral form of life, a transition which permits him to feed a greater number of people and guarantees him a more certain livelihood. . . . Increasing population density compelled man to exert his intellectual powers and to discover new methods for the greater cultivation of the soil. . . . In this way, agriculture progressed and cattle-raising became a mere adjunct to agriculture; in the period of farming, people became settled. . . .” Quoted from [The real economics of the American System](#), EIR, Vol. 25, No. 36, September 11, 1998, p. 29. The quote is from Henry Carey, *The Harmony of Interests: Agricultural, Manufacturing, and Commercial*, first published in 1851, and reprinted by Augustus M. Kelley, New York, 1967.



universe cannot develop further without the help of the human mind as its companion and master. Such a necessity depends on man's freedom to expand his creative powers everywhere in the universe as was proposed by Krafft Ehrlicke in his powerful idea of *extraterrestrial imperative*.

However, such a purpose cannot spring from a blind force; it can only come from a willful control of the changes in modalities of application of what Henry Carey conceived as the harmonic founding principle of Political Economy. Look at the principle of Political Economy within the following proportionality of opposites:

How are the laws of man different from or similar to the laws of matter in the universe? *The law of increasing relative population density by man and the law of increasing energy flux density in the galaxies are the same; however, the law of gravity and the law of creating heavy ideas are opposites; the first makes the body of matter more or less heavy, while the latter makes the matterofmind lighter and lighter as time progresses. How do you make those opposites coincide?*



Henry Charles Carey (1793-1879)



Erasmus Peshine Smith (1814-1882)

This paradoxical action requires the exercise of a combinatory function of three moral qualities that man must learn to activate harmonically within society through the following dynamic composition of Political Economy: ASSOCIATION, INDIVIDUALITY, and RESPONSIBILITY. According to Henry Carey, these social qualities are the three fundamental qualities which differentiate man from the beast and which the British Empire free-traders of the world swore to extirpate from this planet.<sup>5</sup>

**ASSOCIATION + INDIVIDUALITY + RESPONSIBILITY:  
PROGRESS :: MATTER + MOTION : FORCE**

The integration of human social behavior such as the integration of ASSOCIATION, INDIVIDUALITY, and RESPONSIBILITY must generate PROGRESS in the same proportion as MATTER associated with MOTION must generate FORCE. How can this principle of balance generate power in the universe?

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<sup>5</sup> It was with the power of the American Government and not with military force that Henry Carey insisted on defeating British free trade. As he wrote before the end of the Civil War, in 1865: "When the present war shall have been closed there will be another to be fought, and that one will be with England. By many it is desired that it may be a war of cannon balls; but it is not with such machinery that she chiefly seeks to fight us. It is in the Halls of Congress she is to be met, and the machinery with which we have successfully to meet her is to be found in the adoption of those measures which shall enable us most speedily to profit of that inexhaustible store of fuel and of ores that nature has placed at our command..."

"The whole South now requires reorganization, and one of the first steps in that direction should be found in furnishing machinery of circulation [railroads]. As much of need of this stands the whole of that great West for the development of whose wonderful powers we are not exporting in that direction so many hundreds of thousands of our people. If the Government does not supply that machinery, who is there that can or will do so? Look carefully, I pray you, my dear sir, at the vast field that is to be occupied, and at the great work that is to be done, and then wonder with me that the Government should permit its soldiers to perish in the field, while it is debating the terms of a loan to be made to it by men all of whose interests are to be promoted by a diminution of the circulation and an increase of the rate of interest. Let our soldiers be paid, let the credit of the Government be once again re-established, let the rate of interest be kept down, and let the Treasury reassert its independence, and all will yet go well ...

"That control will find its place among the hands and heads of the community that makes and uses the largest quantity of iron. A single decade of the system above described would suffice for placing us, in this respect, side by side with England. At the close of another, she would be left far behind, and we should then have vindicated our claim to that position in the world of which our people so often talk, and of the true means of obtaining which they so little think." Henry Charles Carey, *The way to outdo England without fighting her*, H.C. Baird, Philadelphia, 1865, pp. 59, 161, and 165. From two letters to Hon. Schuyler Colfax, Philadelphia, January 9 and February 18, 1865.

Although such proportionality is incommensurable by linear means, such an economic principle is perfectly commensurable by non-linear means of advances in technological progress; especially through the differences and similarities that Henry Carey established between the moral laws of human social conduct and the physical laws of matter in the universe. So, what is to be discovered behind that incommensurable proportionality is how man and nature can partake of different universal laws and, yet, be congruent with universal principles in the simultaneity of eternity. How can man produce such positive results by combining economic actions affecting galactic developments? Smith answered in the following manner:

“It is doubtless true, that greater difficulty may be anticipated in forming a science of Political Economy, than in subjects of a less complex character. It involves the relation between man endowed with reason and will – combined in association where the reason and will of one conflicts with those of another – and the world of physical nature, wherein what of instinct and will exist are subordinate to human dominion. The objects whose relations we have to examine are heterogeneous, and in one of them there is the apparent source of perplexity, that *will*, by its very nature, rejects law which is founded on the notion of a necessary succession of events. The objects – man and the natural world – have each its own distinct system of laws, both operating at one and the same time, co-operating in full force; neither superseding the other, for this would be opposed to the distinctive idea of a law, but producing results by their combined action. This consideration may suggest the method of inquiry most calculated to be successful.”<sup>6</sup>

In order to become necessary for the benefit of nature as a whole, man requires profound changes in his implementation of Political Economy. It is obvious, here, that such a notion of Political Economy has been assigned a much broader treatment by E. P. Smith than by his British counterpart, Stewart Mill, who

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<sup>6</sup>Erasmus Peshine Smith, *Op. Cit.*, p. 16.

wrote that “Political Economy concerns itself only with such of the phenomena of the social state, as take place in consequence of the pursuit of wealth.”<sup>7</sup>

In his comparison between man and animal, Smith emphasized how animal requirements are limited while human requirements are unlimited, “for it is the characteristic of man, in his higher nature, that his desires are illimitable, always propagated in widening circles, of larger extents – as the ring made by a stone cast in the water creates another beyond it. The animal nature has no such quality, because its functions are carried on in a mechanical way, by the prompting of instinct, which is neither progressive nor improvable.”<sup>8</sup> Of course, the rings that Smith is referring to are transfinite in character. As Lyndon LaRouche demonstrated, such metaphorical ironies are precisely the required non-linear means to measure the incommensurable.

Animals have no food for thought, no metaphorical process to associate with each other, therefore, they have no way of performing creative actions with their brains, because their brains are not meant for performative thought processes; they are only meant to adjust to matter by successive and linear physical reactions; they are meant to obey fixed laws of successive linear causality. This is also, unfortunately, the state of affairs with human beings who merely proceed from some Aristotelian linear thinking of logical deduction and sense perception. What we must now engage ourselves into discovering are the laws which must govern food for thought for improving our fellowman by means of performative non-linear actions and reactions.

In Chapter II of *Principles of Social Sciences*, Henry Carey developed the three fundamental qualities of social man as distinct from the animal. The first quality necessary for the development of a human being is ASSOCIATION, which he explains as the quality that organizes man as “the molecule of society” similar to the gravitation of the planets in the Solar System. Carey wrote:

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<sup>7</sup> Quoted by Erasmus Peshine Smith, *Op. Cit.*, p. 19.

<sup>8</sup> Erasmus Peshine Smith, *Op. Cit.*, p. 23.



“Dependent upon the experience of himself and others for all his knowledge, he requires language to enable him either to record the results of his own observations or to profit by those of others; and of language there can be none without association. Created in the image of his Maker, he should participate in his intelligence; but it is only by means of ideas that he can avail himself of the faculties with which he has been endowed, and without language there can be no ideas, no power of thought. Without language, therefore, he must remain in ignorance of the existence of powers granted to him in lieu of the strength of the ox and the horse, the speed of the hare, and the sagacity of the elephant, and must remain below the level of the brute creation. To have language there must be association and combination of men with their fellow men, and it is on this condition only that man can be man; on this alone that we can conceive of the being to which we attach the idea of man.”<sup>9</sup>

The second quality of a human being is INDIVIDUALITY, which differentiates him from all others, regarding such things as artistic tastes, emotions, and capabilities for axiomatic changes; that is, of accessing higher axioms of non-linear mental associations such as association by individual differentiation:

“In order, however, that these differences may be developed, it is indispensable that he be brought into association with his fellow man; and where that has been denied, the individuality can no more be found, than it would be, were we searching for it among the foxes, or the wolves. The wild men of Germany, and those of India, differ so little, that in reading the description of the one, we might readily suppose we were reading that of the other. Passing from these, to the lower forms of association, such as exist among savage tribes, we find a growing tendency to the development of the varieties of individual character; but, desiring to find their highest development, we must seek it in those places in which there exists the greatest demand for intellectual effort — those in which there is the greatest

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<sup>9</sup> Henry Carey, *Principles of Social Sciences*, J. B. Lippincott & Co., Philadelphia, 1958, Vol. I, Chapter III, section 4, p. 41.

variety of employment — those in which, therefore, the power of association most perfectly exists, in towns and cities. That this should be the case is perfectly in accordance with what is everywhere else observed.

"‘The more imperfect a being is,’ says Goethe, ‘the more do its individual parts resemble each other, and the more do these parts resemble the whole. The more perfect a being, the more dissimilar are the parts. In the former case, the parts are more or less a repetition of the whole; in the latter case they are totally unlike the whole. The more the parts resemble each other, the less subordination is there of one to the other; subordination of parts indicates a high grade of organization.’"<sup>10</sup>

Carey referenced the same idea from the American geologist, Arnold Guyot, who wrote in his *Earth and Man*: “The greater the variety of individualities and relations in a society of individuals, the greater also is the sum of life, the more universal is the development of life, the more complete, and of a more elevated order... Variety in unity is perfection.”<sup>11</sup> Conversely, the more homogeneous relations exist between the parts and the whole, the more imperfect they are, because homogeneity leads to dumbing down.

Thirdly, the most important quality which distinguishes a human being from an animal is RESPONSIBILITY with regards to other human beings and to God. This is the human moral quality that the Anglo-American Synarchy of Empire has been attempting to destroy in American society over the last two hundred years by turning human beings into slaves.<sup>12</sup> Carey wrote:

“The slave is not a responsible being, for he but obeys his master. The soldier is not responsible for the murders he commits, for he is but an instrument in the hands of his superior officer, and in turn but obeys the irresponsible chief of the state. The pauper is an irresponsible being, though often held by man to be responsible. Responsibility grows with the growth

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<sup>10</sup> Henry Carey, *Op. Cit.*, pp. 52-53.

<sup>11</sup> Quoted by Henry Carey, *Op. Cit.*, p. 53.

<sup>12</sup> Recommended reading: [UK FOREIGN POLICY IN A SHIFTING WORLD ORDER](#). House of Lords, December 18, 2018.

of individuality, and the latter grows, as we have seen, with the growth of the power of association.”<sup>13</sup>

It is not an accident that Carey chose to compare the state of conflict between North and South in the United States with the difference between the rule of Solon of Athens and of Lycurgus of Sparta. The sophistry behind that Peloponnesian War is the same that the British used in the American Civil War. Carey wrote:

“The artisan improves his machinery, that he may call to his aid the power of electricity or of steam, and every step in this direction develops more fully his own peculiar powers. He thus becomes more individualized with great increase in the feeling of responsibility both for himself and his children, and in the disposition for combination of his efforts with those of his fellow-men – whether for the purpose of increasing the productiveness of their common labor, or for administering the affairs of the community of which he is a part.

“Here again we find the correspondence between the development of the essential qualities of man to be in the ratio of the equal action of the centralizing and decentralizing forces. The Spartans permitted no responsibility for their children, and they endeavored to prevent the growth of wealth, while surrounding themselves with slaves, to whom all individuality was denied. The helot had no will of his own. In Attica, on the contrary, although slaves were numerous, labor was held in much higher respect, and diversity of employment caused great demand for intellectual effort. There, consequently, the rights of parents were respected, while those of the child were fully cared for under the laws of Solon.”<sup>14</sup>

A repeat of the Spartan policy has also reappeared in the United States today through the bestial application of the sophistry known as the “Thucydides Trap.” However, when you educate the citizens of the republic with those three moral

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<sup>13</sup> Henry Carey, *Op. Cit.*, pp. 57-58.

<sup>14</sup> Henry Carey, *Op. Cit.*, pp. 58-59. See also *Friedrich Schiller, Poet of Freedom*, Volume II, Schiller Institute, Washington D.C., 1988, The Legislation of Lycurgus and Solon.

qualities, ASSOCIATION, INDIVIDUALITY, and RESPONSIBILITY, you can obtain a governing principle which causes growth and progress through such decentralizing social forces. That principle has been known throughout history as the *principle of sophrosyne*.<sup>15</sup>

As a result, scientific and technological progress and improvements in artistic composition become the moving powers which, according to Carey, most distinguish man from the animal, because these are the powers which are most in direct proportion with the harmony of the physical universe. Human mastery over nature is thus measured through the human ability to increase population in tandem with advances in science and technology.

### **MATTER + MOTION = FORCE**

The hypothesis that Carey submitted for the behavior of inorganic matter, living matter and animal species is proportional to human social development and is expressed by E. P. Smith as the following rule of necessity:

“The phenomena of the visible universe are resolvable into Matter and Motion. These in conjunction make Force; and Matter itself has been regarded, in a metaphysical analysis, as the result and the evidence of an equilibrium of forces. They are in perpetual flux and circulation. Man can neither create nor destroy a particle of matter, nor can he affect the quantity of force in the world. His power is limited to altering the mode of its manifestation, its direction and its distribution. It is latent in matter, and he can set it free by destroying the equilibrium of other forces that hold it bound in quiescence. He may do this by giving the appropriate direction to some independent force existing in the storehouse of Nature, which, after accomplishing its mission, enters into a new equilibrium with one or more of the liberated forces, to remain at rest until again evoked by fresh labour. Every development of force, however, involves a consumption of matter – not its destruction, but its change of form.”<sup>16</sup>

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<sup>15</sup> See my last two reports: [SOPHROSYPNE PLATO'S KEY FOR SECURING CIVILIZATION](#) and [SOPHROSYPNE NOT SOPHISTRY](#).

<sup>16</sup> Erasmus Peshine Smith, *Op. Cit.*, p. 24.



Smith used this argument to counter Thomas Malthus and John Stuart Mill in order to counter their miscalculation on population growth. Similarly, for Carey, the dynamic relationship of human ASSOCIATION, INDIVIDUALITY, and RESPONSIBILITY is able to generate human PROGRESS in the same proportion as nature uses MATTER plus MOTION to produce FORCE. Carey developed this principle of Political Economy in the following manner:

“§ 4. The law of the relative increase in the numbers of mankind, and in the supply of food and other commodities required for their support, will now be found in the following propositions:

“Motion gives force, and the more rapid the motion the greater is the force obtained.

“With motion matter takes upon itself new and higher forms, passing from the simple ones of the inorganic world and through the complex ones of the vegetable world to yet more complex ones of the animal one, and ending in man.

“The more rapid the motion the greater the tendency to changes of form, to increase of force, and increase of power at the command of man. The more simple the forms in which matter exists the less is the power of resistance to gravitation; the greater the tendency to centralization, the less the motion, and the less the force.

“The more complex the form, the greater becomes the power of resistance to gravitation — the greater the tendency to decentralization - the greater the motion and the greater the force.

“With every increase of power on one side, there is diminished resistance on the other. The more the motion produced, the greater must, therefore, be the tendency to further increase of motion and of force.

“The most complex and highly organized form in which matter exists is that of man, and here, alone, do we find that capacity for direction required for producing increase of motion and of force.

“Wherever man most exists we should, therefore, find the greatest tendency to the decentralization of matter — to increase of motion – to further changes of form – and to that higher development which commences in the vegetable world, and ends in the production of further supplies of men.

“With every increase in the extent to which matter has taken upon itself the form of man, there should consequently be found an increase of his power to guide and direct the forces provided for his use — with constantly accelerating motion, and constantly accelerating changes of form – and constant increase in his power to command the food and clothing required for his support.”<sup>17</sup>

Carey developed this beautiful argument against the reductionist view of Malthus, and expressed it as the force-free mental inversion that is required to make discoveries of principle. The change which takes place in the human mind, from the resistance of matter to gravity to the force-free state which challenges the force of gravity, is the improvement of the mind when it goes from one level of discovery of principle to the next higher level. Thus, least action becomes force free action. Let me give you an example of how such a transformation works.

### **THE CALCULUS OF INVERSION IN THE DIFFERENCE BETWEEN MAN AND ANIMAL**

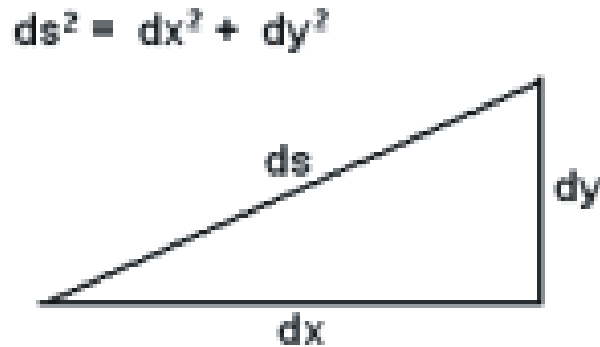
Recall again the three human economic characteristics that Carey established as being different from those of animals: ASSOCIATION, INDIVIDUALITY, and RESPONSIBILITY. Consider each of these three moral qualities as an inversion with respect to animal behavior, in the same epistemological sense that Leibniz had discovered such an inversion when he invented his calculus for the purpose of going from linear to non-linear modes of thinking; that is, when he established the difference between differential and integral and the difference by inversion between the direction of the tangent to a curve and the quadrature of the area under

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<sup>17</sup> Henry Carey, *Principles of Social Sciences*, J. B. Lippincott & Co., Philadelphia, 1958, Vol. I, Chapter III, section 4, pp. 88-89.

that same curve. The singularity of such inversions is what Lyndon LaRouche identified as the singularity of the creative process in the jump-passage from a lower to a higher manifold.

Following Blaise Pascal's work on the quadrature of the circle, Leibniz noted as early as 1673, that "the whole thing depends on a right angle triangle with infinitely small sides, which I am accustomed to call 'characteristic,' in similitude to which other triangles are constructed with assignable sides according to the properties of the figure."<sup>18</sup>



This algorithm (including its inversion) represents a limit projection of the Pythagorean Theorem, where an axiomatic change takes place by inversion of the right angle triangle, as in Plato's *Meno* discovery of the doubling of the square. No other thinker in the history of geometry, at the exception of Bernhard Riemann and Lyndon LaRouche, has ever generated such a powerful performative example of psycho-physical transformation involving both the laws of mind and the laws of matter, as did Leibniz. This wonderful discovery is also reflected in a letter that Leibniz wrote to John Wallis in order to put on record, the unique moment of his creative discovery. Professor Maria Rosa Antognazza reported that moment as follows:

"In October 1675, Leibniz took the final steps leading to the invention of the differential and integral calculus, that is, respectively, the algorithm whose main application is the calculation of the slope of a tangent to a curve, and

<sup>18</sup> Quoted by Maria Rosa Antognazza, [\*Leibniz: A Very Short Introduction\*](#), Oxford University Press, Oxford, 2016, p. 23.

the algorithm whose main application is the calculation of the area under the curve. Writing some twenty years later to the Savilian Professor of Geometry at Oxford, the eminent mathematician John Wallis (1616-1703), he explained: ‘considerations of the differences and the sums in numerical series sparked my first flash of illumination when I realized that the differences corresponded to the tangents and the sums to the quadratures.’ (GM IV, 25) In fact, the recognition of the inverse relationship between the determination of tangents and of quadratures constituted one of his crucial discoveries.”<sup>19</sup>

If you treat that “flash” of discovery as being applied to Leibniz’s method of “inversion of tangents,” you will also be able to discover how to jump from the geometry of the circle to the geometry of the catenary-tractrix. Similarly, in a letter to Huygens dated October 1679, Leibniz elevated this process of transformation to a higher level of *universal characteristic* into what he termed *Analysis Situs* (analysis of situation). Leibniz had then actually discovered an epistemological-physical means of transforming geometrical figures into matter-in-motion within physical space-time. In other words, he had found a means of connecting mind to matter through new forms of geometrical axiomatic singularities.

The task of upgrading from a lower manifold to a higher manifold is to define a universal epistemology of axiomatic transformation, what Leibniz called accessing the *universal characteristic*. However, the reason for developing such a *universal characteristic* was not for speculative purposes. As it is also the case in economics, the purpose is, ironically, human happiness as op-posed to financial profit. Leibniz noted: “In my view, wisdom is nothing other than the science of happiness, and true learning, considered as a preparation for wisdom, is the habit of a soul most plentifully supplied with the knowledge of how to live well and happily.”<sup>20</sup>

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<sup>19</sup> Maria Rosa Antognazza, *Op. Cit.*, p. 24.

<sup>20</sup> Quoted by Maria Rosa Antognazza, *Op. Cit.*, p. 34.



## THE CAREY PROPORTIONALITY AND THE LYDIAN MUSICAL DIVISION

Let's add one more non-linear step to this process of discovery. Geometrically speaking, the three Lydian spirals [**C-F#-E $\flat$ -A-F#-C**], [**F-B-A $\flat$ -D-B-F**], and [**G-C#-B $\flat$ -E-C#-G**] represent the Geometric, Harmonic, and Arithmetic means of all changes within physical circular and spiral action. In this hypothesis, therefore, starting with the octave of **C256-C512**, I consider the spiral of **F#** to be the geometric mean, the spiral of **F** is the harmonic mean, and the spiral of **G**, the arithmetic mean.

If you think of **ASSOCIATION**, **INDIVIDUALITY**, and **RESPONSIBILITY** as three forms of Lydian spirals for the generation of progress in the Political Economy of human society in the same proportional relationship that universal matter in combination with circular action generates force, you will be able to form in your head the proportionality I have used above, that is, **ASSOCIATION + INDIVIDUALITY + RESPONSIBILITY** is to **PROGRESS** as **MATTER + MOTION** is to **FORCE** (**A + I + R : P :: M + M : F.**)

In other words, progress in the economic domain is to a change in the human mind in the same proportion as change in matter is a change in the physical universe. Think of Carey's economic proportionality of **A + I + R : P :: M + M : F** as being generated in the universe by the same musical/geometric principle that Kepler used for partitioning the relationship of the planets in the Solar System. Kepler divided the celestial octaves by half and by half of the half.<sup>21</sup> Such a division generates the three sets of Lydian minor third intervals as identified above.

The three Lydian spirals taken together have the appropriate dissonance function for generating changes in all of the 24 keys of the well-tempered system through the paradox of *coincidence of opposites*, especially for generating change

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<sup>21</sup>Johannes Kepler, *The Harmony of the World*, The American Philosophical Society, Philadelphia, 1997, p. 432.

in the well known ordering of the dominant, sub-dominant, and tonic relationship of most musical compositions and human emotions.

The values of such Lydian divisions are always the same, whether you go up or down the scale. Fred Haight used the example of Beethoven's opening two notes, A and E, of the Ninth Symphony to show how such a process of ordering changes in a musical composition. Fred wrote:

“Take an octave A, to the next higher A. Add the tone E in between them. The ascending interval A to E, is known as a fifth (five notes up: A B C D E). Continuing up from E to A, we have a fourth (E F G A). The Ninth Symphony begins with just those 2 notes: A and E, in octaves (up to 0:42 in this recording.)

“Now, try descending from the higher A to the lower, and maintain the same intervals. A descending fifth gives us the note D (A G F E D), and D to A is a descending fourth (D C B A.) <https://soundcloud.com/user-385773006/beethovens-ninth-get-your-ruler-and-compass-out> .”<sup>22</sup>

My hypothesis, here, is that the Lydian intervals **F, A, C, E $\flat$**  generate the Dominant **E**, the Lydian intervals of **E, G, B $\flat$ , F $\sharp$**  generate the sub-dominant **D**, and the Lydian intervals of **D, F, A $\flat$ , C** generate the tonic **A**. All three sets of Lydian intervals are as economic/musical dissonances by means of which all changes takes place in music as in the universe as a whole.

## CONCLUSION

Henry Carey's polemic on the difference between man and animal had a similar proportional purpose as Leibnizian economics. The overriding intention was to discover the means of relating the transformation of mind and matter by means of discovering proportionalities between the domains of epistemology and of physics for the purpose of generating human happiness. The crucial point to

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<sup>22</sup> Fred Haight, [Beethoven's Ninth Symphony: First Movement - get out your ruler and compass!](#) May 8, 2020.

remember, however, is that while the fostering of economic creativity leads to happiness, the repression of creativity leads to criminality; and this is what we have to turn around in the U. S. today. LaRouche conveyed the Leibniz principle as follows:

“How can we, given a limited land area, with a large concentration of population in certain parts of the area, and low concentration of population in other underdeveloped areas of China, how can we allow the population of China to increase, by increasing man’s power over the total land area of China? Typical problem. This is the problem which all societies face, in one form or the other. How can we increase the standard of living, how can we improve the life expectancy, how can we change the composition of cultural activity in the family, to make a higher quality of human being? How can we eliminate drudgery, emphasize the use of the mind, not just physical labor, to improve the future of mankind? And how can we find happiness in our time, by doing that? This is what Leibniz emphasized: the principle of happiness. Not pleasure, but happiness. To know one is a useful person linking the past to the good future is to be a happy person, because you know your life is necessary. And a person whose life is necessary, and who knows it’s necessary, then others can agree that person is a happy person. A normal human being.”

[...] “**What Makes Us Human.** So, this happiness principle, of using the mind to solve a problem, is the thing that makes for good work, and makes for creativity. You can not buy creativity; you must inspire it. So a good education is not an education which beats people into learning how to obey. A good education is one which forces the child to meet the challenge of solving the problem we know that child can solve. And the victory is joy.”<sup>23</sup>

What is most remarkable with Henry Carey’s work is that it develops a matter of psycho-physical parallelism: AMATTEROFMIND. This is the domain of freedom and of joy for the human mind as expressed by performing the idea of

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<sup>23</sup> Lyndon LaRouche, [What is Physical Economy](#), EIR, February 21, 1998, and September 18, 2020, p. 44 and 47.

increasing one's own energy flux-density for the purpose of fulfilling nature's necessity.

In his book, *[The Past, the Present, and the Future](#)*, Carey summed up precisely what would impair or improve population growth. His most lasting contribution is to have given us the means to understand how those three human qualities, Association, Individuality, and Responsibility, can grow and decline together and respectively in order to form a true self-governing Republic:

“The PAST says to the people of the PRESENT: I have made war and preparations for war. I have kept on foot large fleets and armies, and have raised heavy taxes. I have prevented the growth of wealth and population. I have compelled men to cultivate the poor soils of the earth. I have prevented the division of land and the union of men and of nations. I have made the few strong and the many weak. Take warning by my example. Cultivate peace. Permit population to grow, and ye will cultivate rich soils. Wealth will then grow rapidly and land will be divided. Men and nations will then become united. Armies, and navies, and taxes, will disappear, and the many will become strong, while the few will become weak. All will then exercise the power of perfect self-government, and all will learn to respect in others those rights they would desire to have respected in themselves.”<sup>24</sup>

**FIN**

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<sup>24</sup> Henry Carey, *[The Past, the Present, and the Future](#)*, Carey & Hart, Philadelphia, 1848, p. 414.