



Biology and Society: A Holistic View

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Abstract

Does biology influence society? Yes, but in a very complex and non-deterministic manner. As both biology and society are emergent systems, they must be constantly researched to understand how they are changing. Thus, the two inescapable biological requirements for survival and reproduction must be studied in a dialectical manner in order to understand how they are evolving. Consciousness has arisen to aid in survival, and consciousness has brought forth the need for cooperation which has resulted in the need for communication. Communication is aided by symbols, hence the evolution of language, both spoken and written, and also the appearance of other symbol systems as in art, theater, dance and, indeed, mathematics. Society is, therefore, socially constructed and not fully explainable in mechanistic terms. We are currently living in an ideological social setting that places great emphasis on competition, so that cooperation is necessarily accomplished through domination and control. If we wish to realize our biological need for survival in a more humane way, we must refer to the process of reproduction, which involves a good deal of love and nurture, something more familiar to the role of women than men. Is society evolving in this direction?

Most, if not all biologists, agree that nature has endowed us human beings with two inescapable requirements: survival and reproduction. This is understandably true of all creatures. The different ways in which living creatures execute those two requirements are of interest to zoologists as well as anthropologists, given that human beings are a part of nature. Meanwhile, as creatures have evolved, their means of satisfying these needs, that is their means of doing so, have changed, while the needs themselves have remained the same. One effect of evolution is that recent creatures have involved more advanced forms of consciousness in this process, in other words their consciousness has evolved along with their physical nature.

Thus, for us human beings, our consciousness has allowed us to interpret our biological needs in different ways. For example, we, as have other species, of course, discovered that survival is aided enormously through cooperation. This is also true of the human body, itself, of course, where trillions of cells cooperate in order to survive. In fact,

We have around 10¹³ of our encaryotic cells, and about 10¹⁴ procaryotic organisms (microbiota) living in harmony with us. They are housekeepers of the homeostasis, balance, with no control, one

over the other. They are all equally important in maintaining the hierarchy of priority, assuring food and oxygen to all structures. This is the definition of well-being. Constant cooperation is a MUST for the survival of an organism, as well as for society. (Personal communication from Donatella Verbanac. See also Verbanac, et al 2019).

“Social scientists, especially, could play a significant role in helping our socially constructed beliefs to adjust themselves to changes in our social and natural environment. But they are trapped in a competitive academic system which encourages those scientists to communicate in a language replete with technical terms that discourage any others, except those in their area of specialization, from even trying to understand what they are saying.”

A single human in conflict with the forces of nature, including natural predators, has a much lower chance of survival than those working together. However, human cooperation requires a degree of control in the form of agreement among the group members about how each member is supposed to behave at any given moment and in any given situation. All of this requires communication among members of the group. At the same time, communication is vastly improved through the use of symbols to represent features of our existence, including elements of our environment. Thus, language was born as our most sophisticated set of symbols, something which has vastly improved our ability to communicate with each other and, hence, cooperate. Chimpanzees also cooperate and communicate with each other, as many probably do, if not all of the elements in nature, but with a much more simplified form of consciousness.

Advanced consciousness, however, complicates the process of communication, especially as our symbol systems have become increasingly more abstract. In addition, our advanced form of consciousness requires that we appreciate the fact that our thoughts and behavior are now forever intimately connected. Even our instinctive behavior is now interceded by thoughts that interpret and communicate with others the understanding that governs this behavior.

Thus, we now have various ways of satisfying our needs for survival and reproduction. We know that survival requires cooperation, that cooperation requires communication, and that communication requires the use of symbols with which to communicate and, finally, that language is our most advanced form of symbol making. This is notwithstanding the enormous importance of mathematics as a symbol system to help us understand our natural environment especially. Nor does this mean that other symbols may not be used to communicate. Thus, we also have various forms of theater, music and dance, as well as graphic and pictorial

art, including architecture, sports and games generally, etc., that are very effective in communicating meanings, sometimes not even very easily translated into language.

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Meanwhile, as stated above, in order to establish cooperation, we need order, which is necessary if these systems are to be effective. At the same time, for this order to last, we also need some way to allow it to perpetuate over time. Thus, we institutionalize it in the form of symbol-based expressions, not only in language but in the other symbolic forms as mentioned above, so that succeeding generations can incorporate this order in their consciousness (Berger and Luckmann 1966). These symbol systems include rules of behavior and descriptions of the various roles that the many and diverse individuals are to play in maintaining the social order, from parent to child, to hunter or gatherer, and to the many forms of specialized roles that have constituted any given society from ancient to modern. Thus, our behavior is to a large degree predictable to one another, as if we were involved in a form of social theater (Burke 1973, Duncan 1968).

Today, we have elaborate symbol-systems resulting from our thousands of years of social evolution. (Gutenschwager 1996). But what remains constant throughout this evolution of symbol systems, is the inescapable fact, as stated above, that our thoughts and behavior are closely intertwined, entangled, if you prefer the language of quantum physics. To further this analogy, our thoughts are not simply a reflection of the reality we observe, they are also instrumental in creating that reality. They are like the electronic microscope that changes the physical reality observed by the physicist. This is why in class based societies ruling classes will always need to control thoughts if they wish to control behavior, and they use various symbolic forms, ranging from special emotionally-charged language like mathematics, outright lies, uniform clothing, hair styles, etc., to accomplish this.

Thus, the problems of order we face in our present circumstance, as an increasingly world-wide society, are intimately tied to our thoughts about that order. Our theories and ideologies about that order are instrumental *in creating and changing that order*. In addition, we have moral judgements about the quality of that order, which are a product of our thoughts about how that order *should be* constituted. In other words, our beliefs, our intellectual constructions, are not simply reflections of our observations, they are important in creating that which is observed, and in judging whether what we have created is good or evil. All this was very well known by Cambridge Analytica when it mined data from Facebook to help influence the 2016 elections in the United States. It is also being used to influence and control human behavior generally in the new era of what Shoshana Zuboff (2019) calls “surveillance capitalism”.

This flies in the face of the widespread belief that science has resolved this dilemma, this dialectic between our thoughts and the reality we have created and are observing. Many

scientists, however, are now questioning whether this dilemma has been resolved by science (Frank, et al 2019), as have philosophers in the past, just as the deterministic beliefs of religious followers were questioned during the rise of science at the time of the Renaissance.

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In fact, Keven Leland (2017) has documented in great detail the work of recent scientists who have helped develop our understanding of the dialectical process through which we have evolved not only biologically over the past millions of years but also how we have developed culturally in relation to our genetic evolution. This gene-culture evolution among human beings has been a product of our ability to copy and to teach succeeding generations the accumulated knowledge that makes culture possible.

Experimental studies support the hypothesis that a gene-culture co-evolutionary dynamic arose between socially transmitted skills, including tool use, and aspects of human anatomy and cognition. This interaction was ongoing in human evolution from at least 2.5 million years ago, and has continued to the present. Theoretical, anthropological, and genetic studies all attest to the importance of gene-culture coevolutionary feedback in recent human evolution, which has shaped both our anatomy and our cognition, and speeded up rates of change. . . . Just as biological evolution gave way to gene-culture evolution, cultural evolution then took over the reins of human adaptation, and the pace of change experienced by the members of our evolutionary lineage accelerated further. Culture provided our ancestors with food-procurement and survival tricks, and as each new invention arose, the population was able to exploit its environment more efficiently. This not only fueled brain expansion but population growth as well (Leland 2017, p. 318-19).

Leland then goes on to explain why the Darwinists and sociobiologists have been unable to explain fully the origins of “human cognition and intelligence”.

First, the origins of none [my emphasis] of the critical elements of human cognition (our cultural learning, intelligence, language, cooperation, or powers of computation) can be completely understood in isolation, because each shaped the others in a nexus of complex coevolutionary feedbacks. Second, the human mind did not evolve in a straightforward, linear manner, with changes in the external environment generating natural selection favoring cognitive adaptations. Rather, our mental abilities evolved through

a convoluted, reciprocally caused process, whereby our ancestors constantly constructed aspects of their physical and social environments that fed back to impose selection on their bodies and minds, in endless cycles. Third, to understand the intricate dynamic process through which the human mind evolved required the tools of modern genomics, population genetics, gene-culture evolution, anatomy, archeology, anthropology, and psychology in a concerted multidisciplinary effort (Leland 2017, pp. 320-21).

This interdisciplinary effort that Leland is describing is a brilliant example of innovation in the otherwise compartmentalized practice and linear causal explanation that has characterized much of science throughout the 20th century.

Indeed, social scientists, especially, could play a significant role in helping our socially constructed beliefs to adjust themselves to changes in our social and natural environment. But they are trapped in a competitive academic system which encourages those scientists to communicate in a language replete with technical terms that discourage any others, except those in their area of specialization, from even trying to understand what they are saying. While their status, indeed their “survival” in that system depends upon this obfuscation, the unintended consequence is that valuable information necessary to the social dialectic is essentially unavailable to everyday humans and fellow academicians alike.

It is in this sense that specialization is both a blessing and a curse. It is a blessing because it allows us to examine specific aspects of reality in great depth and to understand that aspect as in no other way. It is a curse because it encourages specialists to think that that particular aspect of reality is unassociated with other aspects or is something that other specialists will deal with and not of their concern. It is a bit like taking a piece of a larger puzzle and examining it in great depth and then forgetting to put that piece back in its place in the larger puzzle. Philosophy served the purpose of relating the various pieces to the larger puzzle in ancient Greece where science was born. Today, however, philosophy is seen as yet another specialization and not a particularly important one at that, among scientists and engineers in any case.

In any case, the development of society witnessed over the past several thousand years appears to have grown out of a conscious belief that to satisfy our need for survival we need to control nature and our fellow humans, with war as a natural extension of this belief (Sahlins 2008). This is entirely consistent with our role as hunters in our previous evolutionary state as hunters and gatherers. Therefore, this has been primarily a male-dominated view of the world, as has also been our systems of thoughts and beliefs during the same period (Gutenschwager 2017). These systems have, of course, been greatly enhanced by the growth of science and technology over the most recent several hundred years. Science is the natural outcome of our curiosity about everything and has increased our knowledge of nature immeasurably. Using it to control nature and, where believed necessary, our fellow humans, to promote our material interests is, however, a choice we have made as human beings. This need, as Solomon et al (2015) have demonstrated, as well as Becker (1973) before them, is closely related to our human consciousness of our own death. We establish elaborate belief systems to help us cope with this awareness and when we are confronted with alternate belief systems,

we need to degrade them, leading to racism, tribalism, etc. and a willingness to destroy the perpetrators of those systems. At the same time science is an institution in the anthropological sense. As such it is more than the activities of any given scientist, or even the total of all scientists' activities: the total is more than the sum of the parts. As an institution it involves beliefs about the character of the world it examines, its ontology. It involves rules about how this world should be studied, its epistemology and its methodologies. These rules are passed on from generation to generation and constitute the essence of science as an institution. As in any cultural institution, individual scientists may follow these rules to a greater or lesser degree, as it suits their individual understanding of reality. Nor are these rules absolutely constant over time; they may change and evolve as the experience of scientists alters their understanding of the world they study.

The institution of science is currently greatly influenced by the atomistic philosophy of Democritus, implemented by Newton and expanded upon philosophically by Descartes, who believed that the mind and body are separate entities. Thus, science is divided among various specializations with little communication among them, much as society as a whole is divided into specialized activities, with little sense of the overall effect on the structure of this society. The science of economics has interpreted this atomism as individualism, with various mathematical formulations as to how a total society would be formed based upon individualist thinking and acting. In fact, this has become a prevailing, that is, institutionalized, ideology of life for all members of the current societies incorporated under the capitalist system, Marxist critiques notwithstanding.

A major characteristic of this individualistic system is our inability to observe the often-unintended consequences of our intentional actions. For example, science has vastly improved our ability to live healthy lives and increase our life expectancy. Through improvements in sanitation and medical care we have decreased infant mortality substantially. This has produced the population explosion observed by demographers and has vastly increased the population on the earth. This, in turn, has been aided by the encouragement of religious leaders for their congregations to have many children and thus increase their loyal followers. This also has then often led to wars to obtain the resources needed for this growing population to survive, something not observable in an individualistic or tribalistic worldview. Only a more holistic worldview would allow us to understand these connections.

We have not spoken about our need for reproduction. This has been and is largely, though not exclusively, a female responsibility in most species. Meanwhile, for more advanced forms of life, this process has entailed much more than simply giving birth. For humans, especially, it has also entailed not only giving birth and nursing of the new born, but a long period of nurturing them as well, if they are going to survive. Out of this process has grown our capability to relate to our fellow human beings emotionally and to care for them in more than just material ways. Thus, reproduction and survival constitute a complex interrelated process in human beings. How we deal with this process is a choice we make; our thoughts and beliefs determine to a large extent what we do and how we behave in response to these biological requirements. In short, as we have evolved socially and biologically, we have learned to interweave our two biological needs, the need for cooperation to satisfy our need for survival, on the one hand, and our need for love and nurture, to satisfy our need for reproduction, on the other.

Now we come to the current dialogue between the political right and left, between the belief in the right, that the benefits enjoyed by the Europeans, Americans and Japanese, and now some upper and even middle classes elsewhere, have been worth the costs to the environment and the millions of workers and peasants who were literally sacrificed under various forms of slavery throughout the world during this process, and to a surprising extent still prevalent today. The belief on the left, on the other hand, is that these sacrifices may have been to a large degree unnecessary, and that, in addition, while the material standards of living have improved, the consumerist society has not ultimately made people better off emotionally than they might have been with a different form of order. Finally, in addition, those on the left believe that the environmental damage has been enormous, now possibly threatening our very survival as a species.

This raises the question of whether and to what degree we are well off in today's system of thoughts and beliefs. Some people are clearly better off materially, and to the degree that material insecurity for the poor is also an emotional problem, many are also better off emotionally. To the extent that we are stressed out in our alienating, intense profit-oriented and machine-based system, both at work and as consumers, we are probably not better off, emotionally. At the same time the reoccurring financial crises brought on by our social scientific theories and beliefs in an individualistic competitive socio-economic system, are now increasing the number of people who are not so well off, materially, to say nothing of emotional factor. (Yates 2020, p.24).

We need to put this division between left and right into the framework of our need for survival and reproduction, as well as within the assumption that we, as humans have created this social order. We need to discard the belief that there is something "natural" or predetermined about this order. We need to understand that our thoughts and beliefs are not objectively true, but only insofar as they are imposed on our fellow human beings. We need to stop hiding behind God or science or mythology, as the source of our authority, and recognize that our seeking to fulfil our own psychological and emotional needs through these thoughts, beliefs and behavior. If we desire and believe in competitiveness, then we seek to impose this on our fellow humans. If we believe in love and friendship, we also seek to influence our fellow humans in this direction. Our social theories are merely symbolic representations of these beliefs, as we seek to legitimize them through whatever means we may find.

So, the question is: What is the best means for survival and reproduction? Should we dominate and, if necessary, destroy our competitors, as war and capitalism have done? Meanwhile, needless to say, current theoretical and ideological rhetoric rarely acknowledges this. Or should we reexamine our beliefs, our theories and ideologies, to see if there might be a better way to satisfy our needs for survival and reproduction?

At the same time, as we have *not* always been predators, but were prey for long periods of time, there is a lingering emotion of fear that imposes itself from time to time and from person to person (Hart & Sussman 2019). For those most affected by this, there is often an emotional need for power to offset this fear (McClelland 1975). In other words, the means to establish cooperation as necessary for survival will be seen by those people as best accomplished by the imposition of control through the exercise of power. This is not uncommon historically, as we have seen so often in the past. Thus, while every revolution in history has sought "Liberté, Égalité & Fraternité", they are soon replaced by a new set of bullies seeking to satisfy their

need for power usually through the accumulation of wealth, thus hoping to overcome their fear of death.

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This need for power is irrespective of the particular sociopolitical and economic system and its attendant ideologies and theories at any given time, whether inspired by mythology, by religion, by science, or whatever. It is a troublesome factor lurking in the background of any social system. Nor should this “personal need for power” be confused with McClelland’s “need for achievement”, or even worse with Maslow’s need for “self-actualization”. This is something which few people attain, in any case, as, according to Maslow himself, they must generally first have fulfilled all of their lower order needs for “security”, “affiliation” and “esteem”, a fact which is often ignored in the application of his hierarchy by professionals involved in counselling.

What this implies is that any social system we hope to establish in order to satisfy our material and emotional needs must confront this problem of the need for power. As emotional issues are not much in vogue today with the materialistic systems of thought and belief that govern our behavior, many of us will probably have to begin to chart new waters. In other words, we must seek a socio-politico-economic system that not only works effectively in a rational sense, but also in an emotional sense. We must broaden the meanings we give to such terms as development, progress and evolution, modifying the strict disciplinary boundaries that have compartmentalized our thinking for so many years.

This compartmentalization may have been, and probably was, necessary to deal with the growing complexity of the social systems we have been creating since the rise of urbanization, but we now need to overcome the deficiencies of this trend, as Leland (2017) has done. As we extend beyond our areas of specialization this will most certainly increase the level of uncertainty and thus our fear, as it has done in the past. So, we must learn to live with uncertainty, and it will not be an easy task: we human beings like certainty. We like to believe that our beliefs and thoughts and, hence, our behavior, are the correct ones and that others are simply wrong. Furthermore, we generally use our supporting arguments based on science or religion or mythology or whatever, to prove this.

All of this is important because the emotional world in which we live today on most of the planet is dominated by the spirit of predatory individualism, the necessary accompaniment of the supposedly rational organization of society based upon a materialist-oriented search for economic development. One important factor in the birth of this spirit has been traced to the culture of the Anglo-Atlantic world in the 18th and 19th centuries, where

The children of notables had, for centuries, been sent away to be nursed, fostered, and schooled as wards of other notables. Their parents, though they loved them dearly [?], invested little time into rearing and nurturing their progeny. They spent their time in tending to... [their] complex patron-client systems... Consequently, long distance parenting was, in the eighteenth century, associated with wealth and influence. [and]... the weight of tradition made outdoor nursing a persistent institution among ladies in the ruling classes. (Rhodes 2019, p. 3, See also Macfarlane 1989 and 1991)

In other words, the emotional ties that would be necessary for a different kind of collective and cooperative living were undermined by the importance given to property. This includes the domination and control that were necessary to have attained and then to maintain this property in this type of culture. Following an intervening period given to the rise of mercantilism, capitalism was born. Adam Smith and David Ricardo merely formalized and legitimized this system by giving it a theoretical form to make it seem natural and inevitable. Not that the rise of capitalism can be reduced to this factor alone (Holton 1985, Turner 1992). Yet, to the extent that we are emotional, as much, if not more so than rational creatures, this surely must be seen as a dominant factor.

In the welfare states of Europe, the governments have sought to extend the satisfaction of material needs to all members of society. In other words, they have understood well the difference between public and private needs, so that health, education, transportation, etc. are well provided for by the state, unlike elsewhere where the private sector is sacred and is theoretically able to satisfy all human needs as a byproduct of the overwhelming search for profit.

In the “free” market system, it is accepted as natural that all discoveries and inventions will be converted into profit-making activities, including those related to health, education, etc., even if the products and services are then out of reach for a significant proportion of the population worldwide. The market, it is believed, will transcend all such inequalities, given sufficient time. We’re still waiting for this to happen for everyone, more than 200 hundred years on (See www.worldometers.info for information on the current state of the world in this respect).

The social welfare countries have made equality a formal part of their agenda, to the extent that they are able within their budgetary limits. But, as Marx said, no socialist system is possible as long as there is capitalism in the world. These societies must protect themselves from the constant interference posed by blockades, sanctions, military threats, assassinations, etc., to say nothing of the opposition presented by former privileged classes within their own societies. Thus, they must waste a great many resources on military and police expenses.

They must also try to defend themselves against the continuous propaganda of war in support of endless consumption of material goods as a means of attaining happiness. So, the emotion of fear and the accompanying excessive, even sometimes psychopathic, need for personal power is also not absent from these systems, in part because of the internal and external pressures just mentioned.

So, what is the solution to this problem of how to organize a society in order for there to be cooperation, which is obviously necessary for our survival, and to do this without the constant burden of the “excessive need for personal power”? There is no agreement on whether cooperation should be achieved through unlimited freedom for private monopoly corporations or through government planning, or some combination of both. Meanwhile, as a matter of fact, there is government planning present everywhere, but in capitalist countries it is directed to the preservation of private wealth. In the financial crisis of 2008, the governments “bailed out” the banks; they did not “bail out” the people, which would have accomplished the same goal in a much more humane way. But this would have undermined the discipline of the free market, that is, it would have destroyed the legitimization of the entire ideological belief system of the capitalist world order.

Going back to the origins of the term “free market”, we must confront the symbolic importance of this term. As urbanization got under way, many people were enchanted with the new found freedom to be found in the urban setting. They were happy to escape from the intellectually restrictive confines of the closed-in village society that had prevailed for so many generations. Ancient Greece increased productivity, in part based upon slavery and the subordination of women, which then led to the leisure time among the aristocracy that allowed them to engage in philosophical speculations of all sorts. This included science, through which they sought freedom from the fear that accompanied superstition. This freedom also allowed them to discover new forms of social order in the “agora”, a meeting place that brought a new form of self-government necessary to establish a new order that would allow cooperation to take place on a larger scale. Unfortunately, this was limited to the city-state (the polis), however, so that larger scale cooperation was still not possible. Thus, there were, unfortunately, in spite of the unifying efforts of Alexander and his father, many wars among the city-states that ultimately made it impossible for Greece to withstand the onslaught of imperial Rome, where cooperation was organized through domination and control.

None of this is to underestimate the complex difficulties of maintaining social cohesion while allowing a degree of personal freedom. Too much social cohesion can lead to a feeling of individual repression, while too much individual freedom can lead to a loss of order and a feeling of alienation. This dilemma is very much at the heart of the current conflict between the left and the right, between the capitalist and socialist ideologies and their resulting social systems. Thus, the challenge that humanity faces is to search for a happy medium between these two extremes. Furthermore, as Aristotle so wisely said, we are destined to find a happy medium (μέτρον ἄριστον) by first experiencing the extremes. And the means to find this medium will always involve education and communication, best accomplished without anger and fear, as we hopefully shall learn in the 21st century.

Flashing forward to the present time we can see the necessary distortion that is embodied in the current idea of freedom. It is, of course, true that progress involves the innovative

thought of individuals, but these individuals are always part of a larger whole that extends over time and space. They are never isolated individuals; they are always connected to others in a long history of effort to better understand our existence on this planet. Their research, their very material well-being is supported publicly by their fellow beings in society.

The belief that innovative individuals should improve their individual material well-being by turning every discovery into a profit-making enterprise is part of an elaborate belief system created over time by the human beings in our current society. These are NOT the laws of God or of nature, they are human thoughts and beliefs. There is a belief that if I improve my own material condition, at times even at the expense of other humans, this will somehow improve the lot of everyone, irrespective of whatever innovation I may be responsible for. It is part of a belief system, indeed, a moral judgement about how we can better cooperate and thus survive. It says that *we can best cooperate by not cooperating!* It is purely an emotional belief, parading as rationality. Yet it is somehow believed to be provable by mathematical means, even though not provable empirically, except by careful selection of self-serving statistics that mask more than they reveal (Zaman 2020).

Thus, we confront an existential dilemma. We are led to believe that competition is good and, furthermore, that it promotes individual freedom. In order to do this, we must ignore the fact that competition is an unstable circumstance; it always leads to winners and losers. The winners in sports competitions receive a trophy, a symbol of victory. The winners in society absorb the losers, hence the system of monopoly capitalism that we are experiencing in the world today (Baran and Sweezy 1966). These current winners meet every so often to agree on how they should behave individually, in order to maintain their power as a small class of extremely wealthy and powerful people in a largely undemocratic political system (Domhoff, et al 2018).

In other words, at the present time at least, cooperation at a global level is made possible by domination and control. A world culture is created with often deceptive thoughts and beliefs about how it should be organized, beliefs prompted by a moral sense that this is good. This sense is based upon an assumption that it is natural and that science provides the proof that it is so. This is an idea that a certain number of scientists, themselves, are now opposed to (Frank 2019). But the concept of science is used symbolically in the social world for purposes beyond its original intention, including by social scientists. This is especially true for economists, who seek to improve their social status and, hence, their survival, all based upon the belief that by doing so they would improve the well-being of everyone in society (Fullbrook 2004). Again, the belief that cooperation can be achieved by not cooperating!

Perhaps it is time to interrelate biological survival and reproduction, by contrasting domination and control with nurturing and love, as a means to achieve the cooperation necessary for our survival. Nor is this so difficult to accomplish:

We suggest that human beings are naturally cooperative when healthy and only resort to violence under abnormal conditions, as when stressed, abused, neglected or mentally ill (Sussman and Cloninger 2011, p. ix)

More recent research also confirms this belief:

Our experiments indicate that creating inclusive societies that offer pathways to purpose and a sense of belonging to all its citizens has to be a priority in the fight against political violence. Radicalisation is a social phenomenon that must be socially combated with the help of inclusive governance, friends and families, and media... as the possibility of a purpose-driven life reemerge[s] it washe[s] out... [the] flirtation with extremist ideology (Hamid and Pretus, 2019)

We have seen that reproduction is best accomplished through nurturing and love. It has been primarily a female responsibility and has generally been ignored by males in the creation of our belief systems, our myths and theories governing the world up until now (Bhattacharya 2020). This is, of course, changing, thanks to the continuing struggle by women to attain a place of more material and ideological importance in today's society, a struggle that is a long way from completion in most parts of the world.

Meanwhile, the world spends hundreds of billions, if not trillions of public dollars every year on the design and manufacture of weapons of mass destruction whose purpose is to produce death, while spending practically nothing on the production of life, at least in the early years. This is women's work, not in the public sector, or even private sector, for that matter. It has been all but invisible in the male-dominated world of business and politics, to say nothing of the world of science. I, personally, have heard two male professors (fifty years ago, of course) in the social sciences proclaim that they do not award scholarships to women students because they just "go off and become pregnant"!

If we were to attempt to generate cooperation on the basis of love and nurture rather than domination and control, there would have to be a titanic shift in human consciousness. Reproduction of the species would have to enter the public consciousness and public monies would have to be invested in it. Reproduction would have to be supported economically from the moment of conception, given the psychological and physical importance to adult health created by the conditions in which the embryo matures (Longo 2013, Ch. 11).

A fraction of the monies spent on the manufacture of death, if given over to the manufacture of life, could in the long run vastly alter the world culture. This culture is currently dominated by the emotions of anger and fear, the byproducts of the competitive system that rules our thoughts and behavior today. A national (defense) industry devoted to the manufacture of life would require financial support for reproduction separate from dependence on and/or perhaps even shared by a marriage partner, quite different from the current system of support. *It would be a public expense well worth the investment if it could lead to emotionally secure males (and females) not burdened by the excessive need for power and, hence, a culture not oriented to perpetual war and death.*

Obviously, given the serious problem of over-population in the world today, this should not be seen as an incentive for women to have endless numbers of children. Indeed, as Malthus warned, our success in reproduction may now have, as an unintended consequence, threatened our ability to survive. Hopefully, as women find a place in society outside of reproduction, they would be less inclined to need reproduction as a means of self-fulfillment

in the modern urban setting. Hence, they must also be able to find fulfillment in work-based activities beyond their role in reproduction. Nor would they need to have many children as a form of social security, if human support, especially in old age, were part of a nurturing and love-based society.

So, to review, I am saying that our biology requires survival and reproduction. Both of these requirements also require cooperation: we are social animals. Cooperation in a competitive culture is accomplished via domination and control, and this is as true for reproduction as it is for survival, given the usual dependence of women on the economic support of men in order to carry out their reproduction activities. *This dependent condition inspires the emotions of anger and fear in the offspring, and often leads to the creation of insecure men (and women) with an overwhelming need for power. This then reproduces the systems of domination and control and a competitive society, often leading to war and death.*

In order to break this vicious cycle, we must first become aware of it and then seek ways to alter it through theoretical and ideological formulations that confront it. There is no scientific or deterministic manner in which this can be accomplished: there is no formula. This must be a collective effort, including education for both men and women in a democratic setting, another ideal which requires a cooperative effort, hard to accomplish in a competitive society. All this is up to us, a species with consciousness to assist in fulfilling its biological requirements.

None of this is new, of course: Epicurus, Jesus Christ, Mahatma Gandhi, and many other lesser known persons have been saying this for thousands of years. When Epicurus said, live simply (ΛάθηΒιώσας) and stay away from politics, he was merely saying that unfettered competition would be harmful to everyone involved. The Ancient Greeks instituted the Olympic Games as a possible substitute for war, with the prizes being medals, not the control of other peoples and their lands and resources. Since then thousands of “utopian” communities have also been established by both men and women over the years, including right now, as 200 million cultural creatives attempt to escape from this destructive system of thought and behavior in their neo Epicurean communities (Ray and Anderson 2000). Epicurus’ school lasted for 800 years around the Mediterranean, longer than any other school of philosophy then and now.

At the same time, there may already be under way an evolutionary process that could help to resolve this dilemma. The dog as a household pet is apparently a domesticated wolf. Wolves evolved into dogs through a process whereby female wolves selected mates who were less aggressive and predatory, thus reproducing male (and female) offspring who were gradually also less aggressive and predatory (Cafazzo, et al 2014). Also,

We did not domesticate dogs. Dogs domesticated themselves. In humans, genetic variation in DNA causes Williams-Beuren syndrome, a condition characterized by exceptionally trusting and friendly behavior (Handwerk 2018)

This effect of consciousness on mate selection could also, therefore, apply to human females. With the growing economic independence, women would be less likely to be forced into reproduction with predatory males and thus be able to reproduce less predatory offspring. The high divorce rates prevailing in the more developed countries, along with the delay in

having children, if ever, might suggest that women are now more liberated in selecting their mates. Could it be that in the future we will see more “domesticated” males and, therefore, societies based more upon love and nurture rather than domination and control? Could this already be happening amongst men in the developed countries, as well as among the “cultural creatives”, who are building communities separate from the predatory mentality of the modern world?

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