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Human Possibilities: The Interaction of Biology and Culture

Riane Eisler
Center for Partnership Studies

HUMAN POSSIBILITIES: THE INTERACTION OF BIOLOGY AND CULTURE

Riane Eisler, JD, PhD (hon)

Abstract

This article briefly describes the two main strands of a new unified theory about human nature and human possibilities: *cultural transformation theory* and *bio-culturalism*. Bio-culturalism combines findings from neuroscience about how our brains develop in interaction with our environments with findings from the study of relational dynamics, a new method of social analysis focusing on what kinds of relations—from intimate to international—a particular culture or subculture supports. Bio-culturalism recognizes that our species has a vast spectrum of genetic capacities, ranging from consciousness, caring, empathy, cooperation, and creativity to insensitivity, cruelty, exploitation, and destructiveness, and proposes that which of these capacities are expressed or inhibited largely hinges on the nature of our cultural environments. Cultural transformation theory looks at the whole span of human cultural evolution from the perspective of the tension between the contrasting configurations of the partnership system and the domination system as two underlying possibilities for structuring beliefs, institutions, and relationships. The article describes the core components of partnership- and domination-oriented societies, provides examples of each, and proposes that our future hinges on accelerating the cultural transformation from domination to partnership in our time of nuclear and biological weapons and the ever more efficient despoliation of nature, when high technology guided by an ethos of domination and conquest could take us to an evolutionary dead end.

Keywords: beliefs; bio-culturalism; children; cultural transformation; domination; economics; equity; evolution; family; gender; gene expression; history; injustice; neuroscience; parent-child; partnership; peace; politics; prehistory; primates; relationships; systems; values; violence; women

Introduction

Our most urgent challenge is building a sustainable future. Not a utopia, not a perfect world. But a world where peace is more than just an interval between wars; where dire poverty, brutal oppression, insensitivity, cruelty, and despair are no longer "just the way things are." The critical question, at this time of nuclear and biological weapons and industrial technologies decimating our natural environment, is whether such a future is possible.

Dogmas about an innately flawed human nature doomed by "original sin" or "evolutionary imperatives" are everywhere around us. Their message is simple: humans are innately selfish and violent, so there is no point in even trying to create a more caring and sustainable way of life.

But before we decide to quit before we even start, let us look at the reality. Cruelty, insensitivity, and destructiveness are clearly human possibilities. But that is hardly the whole story. We have only to look around us to see that humans also have enormous capacities for caring, consciousness, and creativity. These capacities are integral to human nature, and so are our enormous capacities for thinking, learning, and planning. In fact, a strong case can be made that these are the capacities that make us human.

So, with all these wonderful capacities, why has there been so much cruelty, insensitivity, and violence? To answer this question we have to look at the interaction of biology and culture.

This interactive process has been the focus of my multidisciplinary, cross-cultural, historical research over the past three decades, drawing from both the social and biological sciences. Based on the findings from this research, I developed two theoretical strands of a unified theory about human nature and human possibilities. The first strand is the *cultural transformation theory* introduced in my book *The Chalice and the Blade* and other works.[1] The second strand is *bio-culturalism,* which

focuses on the interaction of genes, cultures, and individual actions.[2] This paper briefly describes both these theoretical strands.

A New Analytical Tool and New Findings

I developed the *study of relational dynamics* as a new tool for analyzing cultures. This method of inquiry is based on two assumptions:

1. To understand our cultural evolution, we have to take into account the interaction between both our collective and individual genes and our experiences in different environments.

2. The most important environments for humans at this point in our evolution are the cultural environments we create.

The study of relational dynamics draws from a much wider database than earlier studies. Unlike conventional studies (often aptly called "the study of man"), this method includes the *whole* of humanity—both its female and male halves.[3] Rather than focusing on one period at a time, it looks at the *whole* span of history—including the long period before written records called prehistory. In contrast to conventional studies, which have focused on politics and economics, the study of relational dynamics looks at the *whole* of our lives—including our family and other intimate relations.

Using this more complete database makes it possible to see connections between key parts of social systems: social configurations that transcend familiar categories such as religious vs. secular, Eastern vs. Western, rightist vs. leftist, industrial vs. pre- or postindustrial, and so forth.

Religious/secular, Eastern/Western, and ancient/modern are shorthand for ideological, geographic, and time differences. Right/left and liberal/conservative describe political orientations. Industrial, pre-industrial, and postindustrial describe levels of technological development. Capitalism and communism are labels for

different economic systems. Democratic/authoritarian describes political systems in which there are, or are not, elections.[4]

None of these categories takes into account the totality of the institutions, assumptions, beliefs, relationships, and activities that constitute a culture. Most critically, conventional categories fail to take into account the cultural construction of the primary human relations: the formative childhood relations and the relations between the male and female halves of humanity—even though these relations are basic to our species' survival as well as to what children learn to view as normal or abnormal, moral or immoral, possible or impossible.

A basic principle of systems science is that if we do not look at the whole of a system, we cannot see the connections between its various components—just as if we look at only part of a picture, we cannot see the relationship between its different parts.

What becomes evident looking at a larger picture that includes the cultural construction of parent-child and gender relations are social configurations that repeat themselves cross-culturally and historically. There were no names for these social configurations. So I called one the *domination system* and the other the *partnership system*.

The partnership system and the domination system are self-organizing and nonlinear. They describe mutually supporting interactions of key systems components that maintain a particular systems configuration.

These interactions establish and maintain two very different types of relations—from intimate to international. One type is based on rigid rankings of domination ultimately backed up by fear and force. The other type is based on mutual respect, mutual accountability, and mutual benefit.

No society orients completely to either the domination model or the partnership model. This is why I call this new conceptual framework the *partnership/domination continuum*. But the degree to which a society or time period orients to either end of this continuum profoundly affects which of our large repertoire of human traits and behaviors is culturally reinforced or inhibited.

The Partnership/Domination Continuum

A tenet of systems self-organization theory is that in complex living systems such as human societies, rather than looking for one-way causes and effects, we have to take into account the interactions between the core elements of the system that together maintain its basic character.

The interaction of the core elements of the *domination model* are clearly visible in the most brutal, violent, and repressive societies of modern times: Hitler's Germany (a technologically advanced, Western, rightist society), Stalin's USSR (a secular leftist society), the Taliban of Afghanistan and fundamentalist Iran (Eastern religious societies), and Idi Amin's Uganda (a tribalist society). There are obvious differences between these cultures, but they all share the core configuration of the domination model:

1. **A structure of rigid top-down rankings**: *hierarchies of domination* maintained through physical, psychological, and economic control. This structure is found in *both* the family and the state or tribe, and is the template or mold for all social institutions.

2. **The rigid ranking of one half of humanity over the other half.** Theoretically, this could be the female half over the male half. But historically, it has been the ranking of the male half over the female half. Along with this ranking of male over female, we see the higher valuing of "hard" qualities and behaviors, such as "heroic" violence and "manly" conquest and control. I want to

emphasize that these are *not* qualities inherent in men, but rather qualities stereotypically associated with "real masculinity" in domination ideology.

3. **Culturally accepted abuse and violence,** from child-and wife-beating to persecution of minorities and chronic warfare. Every society has some abuse and violence. But in cultures orienting to the domination model, we find the institutionalization and even idealization of abuse and violence to maintain hierarchies of domination—man over woman, man over man, race over race, religion over religion, tribe over tribe, nation over nation.

4. **Beliefs that relations of domination and submission are inevitable, normal, and even moral.** In cultures and subcultures that orient closely to the domination model, we find teachings and stories that it is honorable and moral to kill and enslave neighboring nations or tribes, stone women to death, stand by while "inferior" races are put in ovens and gassed, or beat children to impose one's will. In this belief system, there are only two options. You either dominate or you are dominated. Therefore, both war and the "war of the sexes" are inevitable. The guiding belief is that there is no other alternative.

The *partnership model* has a very different core configuration. The basic template of this model also consists of four interactive, mutually supporting components:

1. **A democratic and egalitarian structure.** This structure is found in *both* the family and the state or tribe, and is the template for other institutions. That is not to say that there are no rankings. But they are *hierarchies of actualization* rather than *hierarchies of domination*. These are more flexible hierarchies in which power is viewed not as power *over* but as power *to* and power *with*: the kind of power described in the progressive management literature today as inspiring and supporting rather than controlling.

2. **Equal partnership between women and men.** With this comes a high valuing, in *both* women and men, of qualities and behaviors such as nonviolence, nurturance, and caregiving —qualities denigrated as "soft," feminine," and "unmanly" in the domination model.

3. **Abuse and violence are not culturally accepted.** This does not mean there is no abuse or violence. But they do not have to be institutionalized or idealized because they are not needed to maintain rigid rankings of domination.

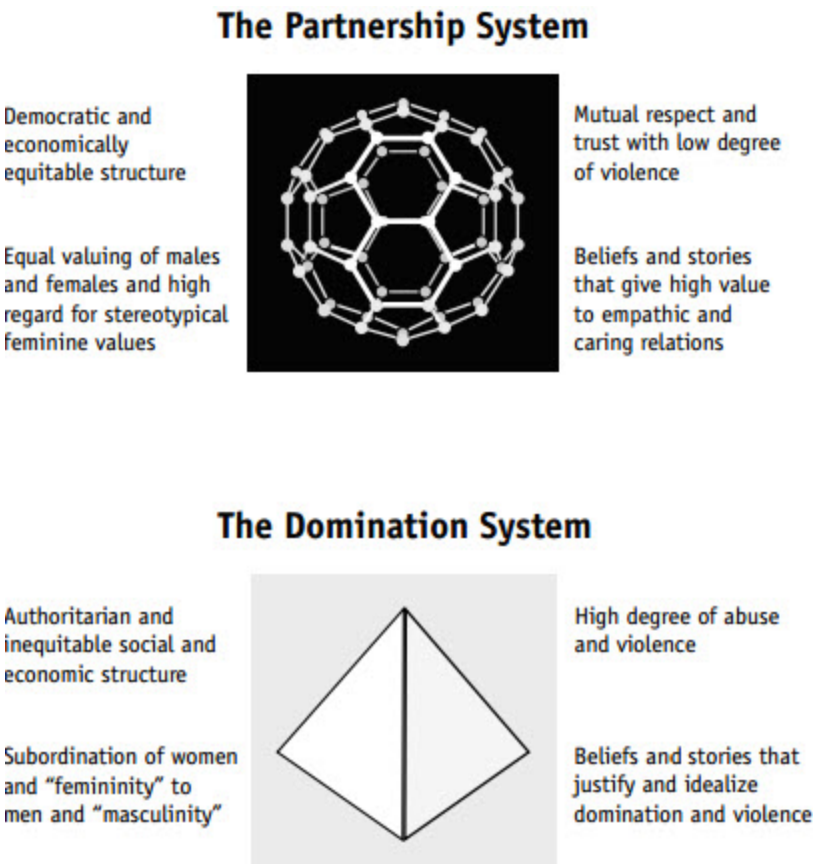
4. **Beliefs about human nature that support empathic and mutually respectful relations.** Although cruelty and violence are recognized as human possibilities, they are not considered inevitable, much less moral.

Cultures orienting to the partnership end of the partnership/domination continuum also transcend conventional categories such as religious or secular, Eastern or Western, industrial, pre-industrial, or postindustrial, and so on. Contemporary examples are tribal societies such as the Teduray, studied by the University of California anthropologist Stuart Schlegel;[5] agrarian societies such as the Minangkabau, studied by the University of Pennsylvania anthropologist Peggy Reeves Sanday;[6] and technologically advanced cultures like Sweden, Norway, and Finland.[7]

In these Nordic societies we find a more democratic and egalitarian structure in *both* the family and the state, more equal partnership between men and women (for example, women are 40-50 percent of national legislators in Sweden, Norway, and Finland), and more caring or "soft" social policies, as well as the rejection of violence in both intimate and international relations.

These are *not* coincidences. They are social *configurations* or patterns of social organization. See Figure 1.

Figure 1. Two Underlying Social Configurations. Reprinted with permission from Riane Eisler (2007) *The Real Wealth of Nations: Creating a Caring Economics*, San Francisco: Berrett-Koehler.



It is also *not* coincidental that pushing women back into their "traditional" place was a top priority for the authoritarian, violent Nazi regime in Germany, or that with Stalin's brutal reign in the former Soviet Union came the official return to a "traditional" family. Neither is it coincidental that fundamentalist demagogues of all religious stripes—Muslim, Christian, Hindu—fanatically push us back to "traditional" families in which men rule women and parents rule children through fear and force, or that their insistence on authoritarian rule in both the family and the state or tribe goes along with their doctrines of "holy wars," or that they condone, and even command, violence against women and children as "moral."

Psycho-Social Dynamics of Partnership or Domination

The illustrations we just looked at demonstrate that societies in all conventional categories—right vs. left, religious vs. secular, Eastern vs. Western, capitalist vs. socialist—can be, and have been, unjust, violent, and destructive. These examples also show that what really matters is the degree of orientation to the partnership or domination side of the continuum—and that how a society constructs gender and parent-child relations is a key factor in this orientation.

Why? To begin with, when children grow up in families that orient closely to the domination model, they learn to accept relations based on domination and submission as normal and right. If they experience or observe violence in gender relations, they learn that it is acceptable, even moral, to use violence to impose one's will on others. They further learn that it's very painful to question orders, no matter how unjust.

Of course, not everyone accepts these teachings. Some people try their best to transcend this upbringing. Some even try to change patterns of domination in the world around them. But many more pass on what they learned from generation to generation.

Many people who have only experienced relations of domination and submission in their early years believe there is only one alternative: you either dominate or you are dominated. Such people are extremely uncomfortable with anything that threatens this "natural order," and can be easily manipulated by demagogic leaders who promise to "get things back under control." Just as children often repress their anger toward abusive parents (as they must to survive) and divert it against children they perceive as weak, these people often scapegoat groups they see as weak or feminine—and feminine is in their mind the same as weak. They also express contempt for more sensitive men (as in derogative labels such as "sissy," "emasculated," and "effeminate"). Moreover, just as obedience, and even love, were harshly demanded by their punitive parents, many people brought up to accept rigid rankings of domination become enraged at those who will not "stay in their place."

Since they learned to equate difference—beginning with the fundamental difference between male and female—with either superiority or inferiority and with dominating or being dominated, they have a mental template they apply to different races, religions, ethnicities, and so forth. Racial and ethnic minorities, women, gays, and lesbians become targets for vilification and persecution. Caring people are contemptuously dismissed as "do-gooders" or "bleeding hearts." Government leaders who are not "properly masculine" are demonized and hounded from office if possible. On the other hand, leaders who stand primarily for control and punishment are respected and even loved—in still another replay of the emotional habits learned in domination families.

Again, not everyone succumbs to these pathologies— but many do. Studies show, for example, that men from authoritarian, highly punitive families tend to vote for "strong-man" leaders. Also, they support punitive rather than caring social policies.[8]

A politics guided by a "softer," more stereotypically feminine definition of power as empowering rather than disempowering does not find fertile soil in the minds of people who learned to see domination and submission as the only alternatives and confuse "honor" with control and/or revenge. Since they associate nurturing and caring with the "women's work" of mothering, such people tend to have a strong antipathy toward what some U.S. politicians contemptuously call the "nanny state"—that is, for policies that support caring for people rather than controlling them. Politicians with this mindset always find money for the "men's work" of wars and bigger and costlier weapons systems. Also following the old role of the punitive male head of the family, they have no trouble finding money to build prisons. But they can never find enough money for anything considered "soft" or "feminine," such as care and education for children—even though high-quality childcare and education has not only been proven to prevent violence but is foundational to human development.

Such people also cannot seem to find money to care for our natural environment. Here too they tend to slip into denial, as in their insistence there is no such thing as

global warming—despite all the scientific evidence to the contrary. So instead of investing major resources in finding alternatives to fossil fuels, they often subsidize their use. Again, these are interactive dynamics that become visible through the lens of the partnership/domination continuum.

Another interactive dynamic is that as the status of women rises, it not only moves women into policy-making positions but also makes it possible for men to embrace more caring or stereotypically feminine social policies without feeling threatened in their status or "masculinity." We see this dynamic in nations such as Sweden, Norway, and Finland, where both men and women have backed what they often call "a caring society."

All this shows that how gender roles are constructed is not inherent in women or men. Rather, it is a key indicator of where a society falls on the partnership-domination continuum. If more men today are doing the "women's work" of feeding and diapering babies, it is not that men's "nature" has changed; it is that a blurring of rigid gender stereotypes goes along with movement toward the partnership side of the continuum.

Another point that merits repetition is that the difference between the partnership model and the domination model is *not* that one has a completely flat structure and the other has hierarchies. There *are* hierarchies in partnership systems. There have to be: every society needs parents, teachers, managers, leaders. But rather than *hierarchies of domination* we find *hierarchies of actualization*, in which power is used to empower rather than disempower others. That we today read about the effective leader and manager no longer being a cop or controller but a man or woman who inspires and empowers others is a partnership trend.

Also, contrary to the popular notion that all will be well if people cooperate rather than compete, this is *not* the difference between the partnership and domination models. People cooperate all the time in domination systems: monopolies cooperate,

terrorists cooperate, invading armies cooperate. Nor are partnership systems free of competition. But it is not the "dog-eat-dog" kind of competition of domination systems. It is competition primarily driven by a striving for excellence. Again, that business books are beginning to distinguish between these two kinds of competition is another sign of movement toward the partnership side of the continuum.

In short, we do not have to start from square one in shifting from a domination to a partnership configuration. Indeed, as we will briefly explore in the next section, the tension between the partnership and domination models has punctuated our entire cultural evolution.

Old and New Views of Cultural Evolution

As Johan Galtung and Sohail Inayatullah write in *Macrohistory and Macrohistorians: Perspectives on Individual, Social, and Civilizational Change*, conventional theories about cultural evolution fail to take into account the fact that humanity consists of two halves: male and female.[9] This is why, in addition to the theories of famous earlier male thinkers such as Toynbee, Hegel, Smith, and Marx, they included in *Macrohistory and Macrohistorians* my *cultural transformation theory,* which takes into full account the cultural construction of both gender and parent-child relations.

Cultural transformation theory proposes that understanding cultural evolution requires analysis of two major movements. The first movement consists of *technological phase changes*, such as the introduction of agricultural or industrial technologies. The second movement consists of *cultural shifts* between orientation to the partnership model and to the domination model.[10]

To summarize briefly, cultural transformation theory proposes that during proto- and pre-history there were a variety of human cultural paths—some orienting primarily to the domination model and others orienting more to the partnership model. This multi-linear theory of cultural evolution is congruent with a basic tenet of Darwinian and

neo-Darwinian thinking: that behavior will adapt to a given environment within the limits of the organism's flexibility.

We already see this in the cultures of our two closest primate relatives, the common chimpanzee and the bonobo. While chimpanzee culture orients more to the domination side (it is male-dominated and more violent, with rudimentary warfare observed when two different groups met in the wild), the bonobos are much more egalitarian and peaceful. As evolutionary anthropologist Brian Hare proposed, the reason these two closely related species developed such different cultures is that they adapted to different environments: after a severe drought, environmental changes left the primates that evolved into bonobos in an environment where food was more accessible, without the severe competition characteristic of the less hospitable environments where the present species of chimpanzees evolved. [11]

Cultural transformation theory proposes that the same principle applies to the cultural evolution of hominids and then humans. In contrast to the conventional view that all early humans stem from savanna-like environments, and that adapting to these environments made us violent and warlike, the cultural transformation view is in sync with that of paleoanthropologist Rick Potts' theory of *variability selection*, which proposes that, rather than developing in a single natural environment, what made it possible for our species to survive was our capacity to adapt to a variety of natural environments.[12]

Potts' theory is based on the fact that hominid fossils have now been found in a variety of natural environments and over a long period of extreme fluctuations in climates and habitats. This supports the view of cultural transformation theory that early hominid and then human foraging or gathering-hunting cultures developed differently in different environments. Moreover, while some scholars still argue that foraging or gathering-hunting cultures are characteristically violent,[13] in analyzing contemporary examples a growing number of scholars have found an absence of warfare as well as generally low levels of violence.[14]

Archeological and mythological data also supports the position that gathering-hunting cultures are not particularly violent. For example, in the art of the European Paleolithic or Early Stone Age (going back around 30,000 years) there is a general absence of scenes of violence.

Two Views of Prehistoric Art

A vivid illustration of the contrast between old domination-oriented and more recent partnership-oriented interpretations of prehistoric finds is this reproduction of a carving of an antelope on a piece of bone dating back to 20,000 BCE (See Figure 2). Next to the antelope are markings that were routinely identified as arrows being shot at the antelope—even though these "arrows" curiously pointed the wrong way (earning the carving the name "wrong-way arrows"). Then a scholar from outside the archeological establishment, Alexander Marshack, re-examined the carving. Not being constrained by the old view of prehistoric art as being about "man the hunter/warrior," he pointed out that the markings were not weapons but vegetation—with the branches going the right way—and that the carving was about the coming of spring when deer grow antlers and vegetation returns again.[15]

Figure 2. Prehistoric bone carving (Line drawing by Jeff Helwig from the original).
Reprinted with permission from Riane Eisler and David Loye (1998, 2005) *The Partnership Way: New Tools for Living and Learning*. Pacific Grove, CA: Holistic Press and Center for Partnership Studies.

Even the famous cave paintings of animals in Stone Age caves, as archaeologist Andre Leroi-Gourhan points out, are generally not hunting scenes but depictions of pairs of females and males.[16] Also focusing on the power to give rather than take life are the so-called Venus figurines: highly stylized, full-bodied, often pregnant female carvings that accentuate the life-giving and nurturing power of women's breasts and vulvas.

However, cultural transformation theory does not hinge on whether a society remains at the more technologically primitive gathering-hunting or foraging level or relies more on farming. Rather, it proposes that we must look at the degree to which a society orients to either end of the partnership-domination continuum.

This conclusion is also supported by archeological and mythological data, which show that more partnership-oriented cultures existed in the more hospitable areas of the globe *after* the introduction of farming. Indeed, this seems to have been the norm in the early part of the Neolithic: the period, starting around 10,000 years ago, when we find the earliest farming cultures.

For example, the Turkish town of Çatalhöyük, an early agrarian settlement first excavated by the British archaeologist James Mellaart, shows no signs of destruction through warfare for 1000 years. The houses and grave goods give no signs of big disparities between haves and have nots. Moreover, as Ian Hodder (the archaeologist currently excavating Çatalhöyük) wrote in his *Scientific American* article "Women and Men at Çatalhöyük": "Even analyses of isotopes in bones give no indication of divergence in lifestyle translating into differences in status and power between women and men" pointing to "a society in which sex is relatively unimportant in assigning social roles, with neither burials nor space in houses suggesting gender inequality."[17]

Even in the technologically advanced Minoan civilization that flourished on the Mediterranean island of Crete until about 3500 years ago, we still see a more partnership-oriented culture. Minoan Crete was already a "high civilization": an economically and socially developed, centralized society with the first paved roads in Europe, the first indoor plumbing, and an art that scholars call unique in the annals of civilization for its beauty and love of nature.

While Minoan Crete was not an ideal society, there are no signs of war between various city states on the island. In contrast to other "high civilizations" of the time,

it had a generally high standard of living. Minoan art features powerful and erotic women, and men who are highly sensual as well as athletic. Though the Minoans had weapons (they were traders who had to defend their fleets in a time when surrounding cultures already oriented heavily to the domination side), there is only one battle scene in their extensive art.

Again and again, Minoan art shows their love of nature: the "Dolphin fresco" from the "queen's quarters" in the palace of Knossos could be a modern ecology poster. In this palace, which was a ritual, governance, and economic center, we also see a highly sophisticated architecture prefiguring that of ancient Greece, which took much from the Minoans but added a strong domination overlay.

One of the most interesting Minoan art works is the so-called "procession fresco." Here we see a high priestess standing in the center of two lines of priests and priestesses bringing her gifts of fruit and wine. Her arms are raised in the gesture of benediction we still associate with male religious authorities like the Pope today. However, she is *not* on a pedestal or dais, but on the same level as the procession of priestesses and priests—suggesting a very different view of hierarchy than that portrayed in later images of deities or rulers towering over their "subjects." Rather than depicting "power over" in a hierarchy of domination, this fresco seems to depict the kind of hierarchy appropriate for a partnership orientation: a hierarchy of actualization where power is empowering rather than disempowering.[18]

By contrast, in the more arid and inhospitable areas where nomadic herding, rather than farming, replaced gathering-hunting as the main means of subsistence, archeological as well as mythological data point to a very different cultural direction. Evidence also indicates that it is from here that more domination-oriented cultures later spread into the more hospitable areas of the globe.[19]

As we today know from chaos theory and nonlinear dynamics, even the most entrenched patterns of living systems can be altered during periods of disequilibrium.

In looking at cultural evolution, we therefore also have to take into account principles of discontinuity when systems disequilibrium makes fundamental or transformative change possible.[20]

This seems to have happened during our prehistory. Climate studies show that one source of this disequilibrium was extreme weather change that led to the desertification of already marginally habitable areas. In the wake of these changes, horde after horde of herders gradually overran the more fertile areas of the globe—bringing with them their domination systems of "strong-man" rule, rigid male dominance, and warfare.[21]

In Europe, these invaders are called Indo-Europeans or Aryans in the archeological literature. Their arrival is marked by major changes in art; for example, the disappearance of female "goddess" figurines ubiquitous in the first half of the European Neolithic.[22] Other radical changes in cultural patterns are burial practices that, instead of the earlier more egalitarian group graves, contain large male skeletons of chieftains with sacrificed women, children, and horses.[23]

In the areas around the Mediterranean, this process of massive change appears to have started around 4000 BCE, with Minoan civilization one of the last to fall (circa 1400 BCE). I should add that while my focus has been primarily on Western civilization—Europe and the Middle East—the same cultural shift from a partnership to a domination direction has been found by scholars in other areas.

For instance, after *The Chalice and the Blade* was published by the Chinese Academy of Social Sciences in Beijing, a multidisciplinary team of scholars there tested the applicability of cultural transformation theory to China. As reported in their book, *The Chalice and the Blade in Chinese Culture*, they too found evidence of a radical cultural shift. While this may not have been due to nomadic incursions, what is clear is that there was an early partnership direction followed by a shift to the domination system.[24]

The question that arises is why this domination orientation maintained its hold even after it was brought into more fertile areas. To answer that question, we again have to take into account principles of systems self-organization that maintain particular cultural patterns. Cultures, like other living systems, seek to retain their basic configuration. So once new cultural patterns become established, they acquire a life of their own. This seems to have happened in the more fertile areas of our globe after the cultural shift in a domination direction.

However, this is not the whole story. Even after the massive prehistoric cultural shift toward the domination model, traditions of partnership did not die out. All through recorded history, there have been periodic partnership resurgences. In Western history, such periods include the early Christian movement and the 11th and 12th century resurgence of a more stereotypically feminine ethos expressed both by the veneration of Mary and the Troubadour poetry. Though these resurgences served to somewhat humanize relations, they were always followed by regressions to the domination side of the continuum.

In the last centuries, during the disequilibrium of the shift to industrial technologies and then postindustrial ones, the movement toward partnership gained unprecedented momentum. The 17th and 18th century "rights of man" movement challenged the "divinely ordained right" of kings to rule over their "subjects." The 18th, 19th, 20th, and 21st century "women's rights" movements challenged men's "divinely ordained right" to rule over women and children in the "castles" of their homes. These centuries also saw organized challenges to the "divinely ordained right" of "superior" races to rule "inferior" ones: the abolitionist movement and then the civil rights and anti-colonial movements. At the same time, organized challenges to economic oppression mounted, as did challenges to using force, first through the pacifist and later peace movements, and more recently through the movement to end the global pandemic of violence against women and children. Today's environmental movement challenges yet another tradition of domination and exploitation: man's once celebrated "conquest of nature."

All this is part of the push toward another fundamental cultural shift—this time from domination to partnership. Yet there has been fierce resistance every inch of the way, and forward movement has been punctuated by regressions. To better understand these regressions, I continued my research, which eventually led to the second theoretical strand described in this paper: bio-culturalism.

Bio-Culturalism

Bio-culturalism is a new theory that analyzes the interactive relationship between biology, culture, and human agency.[25] It is still under construction, awaiting the input, testing, and contributions of others from both the social and biological sciences. But it already provides the framework for a large field of complex interactions, simplifying these by focusing on core systems dynamics.

As its name indicates, bio-culturalism draws heavily from recent research in the biological sciences, especially neuroscience. It draws from social science, especially relatively recent fields such as gender studies, women's studies, and men's studies. It also draws from the family of new theories variously known as systems, cybernetic, chaos, evolutionary, and complexity theories. Some of my theory-building parallels these theories, and some of it expands them by focusing on matters they do not include.

The premise of bio-culturalism—that biology has to be considered in studying human behavior—is certainly not new; it goes back to Charles Darwin and earlier evolutionary studies, and is still the premise of contemporary theories such as sociobiology and evolutionary psychology. But there are significant differences.

Sociobiology and evolutionary psychology highlight our human capacities for insensitivity, cruelty, violence, and destructiveness. By contrast, bio-culturalism highlights the fact that humans have a very large capacity for consciousness, empathy, caring, and creativity. It proposes that to understand human behavior we

have to take into full account both of these different sets of capacities, which developed in the course of evolution.

Most sociobiologists and evolutionary psychologists claim that our behaviors today are the result of millennia-old evolutionary genetic forces that drive us to violence and domination. By contrast, bio-culturalism proposes that our brain neurochemistry is to a large extent the product, *not* of ancient evolutionary imperatives hardwired into our brains, but of adaptations to different environments.

Most sociobiologists and evolutionary psychologists argue that what drives human behavior are genes seeking to reproduce themselves. By contrast, bio-culturalism holds that, rather than being puppets of highly specialized preprogrammed brain circuits as some evolutionary psychologists claim,[26] we are driven by a complex combination of motivations ranging from survival and reproduction to our needs for self-expression, love, meaning, and self-actualization.

In short, as evolutionary systems scientist David Loye writes, to understand and advance the evolution of our species, we need a fully human theory of evolution: one that takes into account our full biological repertoire.[27] In addition, this theory must take into account findings from neuroscience that how we behave is not just a function of genes, but of how our genes interact with our environments. Therefore, bio-culturalism poses and seeks to answer the question of what kinds of cultural environments—as mediated by families, education, religion, economics, politics, and other institutions—lead to the expression or inhibition of our great human capacity for caring and creativity or, alternately, for cruelty and destructiveness.

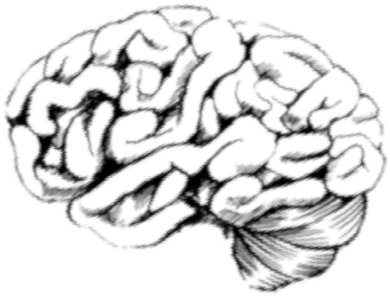
Like cultural transformation theory, bio-culturalism analyzes cultures from the perspective of the two underlying configurations of the partnership model and the domination model. It proposes that cultures orienting to either of these models support the development and maintenance of different neurochemical patterns.

This is not to say that genes make no difference. Genetic variations play an important role in human behavior. But the issue is not genes per se, but *gene expression*—which is primarily a function of the interaction of genes and experiences as affected by different environments.

The Malleable Brain

We are not born with fully developed brains. As neuroscientist Bruce Perry writes, "By birth the human brain has developed to the point where environmental cues mediated by the senses play a major role in determining how neurons will differentiate, sprout dendrites, form and maintain synaptic connections and create the final neural networks that convey functionality." [28] In other words, our brains develop in interaction with our environments. (See Figure 3).

Figure 3. The Malleable Brain



Studies show that even genetic predispositions are not necessarily expressed. A striking example comes from a study of men with a low-activity version of a gene called monoamine oxidase A, or MAOA, that has been implicated in a higher propensity for violence. The study showed that only those men with this gene who were mistreated as children were more likely as adults to engage in antisocial behavior, including violent crime.[29] Studies of adopted children also show that even where there may be genetic predispositions, these are not necessarily expressed; what children experience makes a big difference.[30]

Particularly fascinating are findings from the new field of epigenetics, which documents long-term effects of experiences from generation to generation. Probably

the most famous study in this area was based on birth records collected during the so-called Dutch Hunger Winter. This calamity was caused by a German-imposed food embargo in western Holland toward the end of World War II that led to death by starvation of some 30,000 people. What scientists later found is that the children, and even grandchildren, of mothers who survived this famine had a markedly higher incidence of diabetes, obesity, and coronary heart disease.[31] In other words, the experiences of the mothers affected children two generations removed.

I should add that as important as the emerging field of epigenetics is in demolishing dogmas of genetic determinism, this is not the first time such dogmas have been empirically challenged. Many studies show that in both human and nonhuman species, prenatal and postnatal experiences can affect not only traits and behaviors but also brain development.

To illustrate, Michael Meany of McGill University compared the brain structures of rats who received more caring and attention with those that did not. He found that rats whose mothers gave them plenty of affection developed more brain neural connections (synapses) than those born from less caring mothers—and so also did rats born from less caring mothers who were placed in a rat "daycare" program where they received better care.[32] Also showing the impact of different experiences and environments are studies such as those of William Greenough and his colleagues, who found that rats reared in enriched environments not only performed better than those not raised in enriched cages; they developed more synapses in their brains.[33]

One of the most interesting studies showing how experience affects the brain was that of neurobiologists Robert M. Sapolsky and Lisa J. Share who studied a baboon troop in Kenya. Baboon males are noted for their aggressiveness and violence: males often harass and attack females, who are only half the size of males and lack the males' ferocious canine teeth. The more aggressive males also terrorize lower-ranking males with constant bullying and vicious physical attacks. But after the most bellicose

males in the troop Sapolsky and Share were observing accidentally died, there was a radical shift in the troop's culture. [34]

Suddenly the troop turned into a much more genial community. There were still fights and struggles for dominance. As Sapolsky remarked, "We're talking about baboons here." But both females and males of all ranks now spent significantly more time grooming, being groomed, and huddling close to troop mates.

Not only that, over two decades later the troop retained its more peaceful character, despite the fact that all the original males had died off or left and new ones had replaced them. This study demonstrates that the extreme violence of savanna baboons is *not* decreed by their genes. It further shows that significant behavioral changes in primates can occur without any genetic change, and that these changes can become the new cultural norm in a short time.

And that is not all. One of the most important findings from this study is that when this cultural shift from a rigid domination-oriented culture to one orienting more to the partnership side occurred, the neurochemistry of the troop's members changed. Hormone samples showed far less evidence of stress in even the lowest-ranking individuals compared to baboons living in more violent societies.

All this takes us to five central tenets of bio-culturalism:

1. Domination systems are far more stressful than those orienting more to the partnership side of the continuum.
2. This high level of stress in turn is key to the maintenance of domination systems.
3. Levels of stress directly affect the brain, including its neurochemical patterns.
4. The high levels of stress inherent in domination systems tend to block the expression of our human capacities for consciousness, empathy, caring, and

creativity, or at best distort these capacities to fit the requirement of a system of hierarchies of domination.

5. The lower levels of stress in cultures that orient more to the partnership side of the continuum tend to support the expression of our capacities for consciousness, empathy, caring, and creativity, at the same time tending to inhibit the expression of our capacities for insensitivity, cruelty, violence, and destructiveness.

Brains and Cultures

This is not the place for a detailed exposition of bio-culturalism, but in this final section I want to touch on a few salient points. To begin with, our human brain is remarkably flexible—so much so that it has been called a work in process. This great brain flexibility or *neuroplasticity* has enormous benefits. It enables us to learn, to innovate, and to survive in many kinds of environments, both natural and human-made. Yet this brain plasticity also has drawbacks.

Since our brain's biological design gives it an exceptional capacity to adapt to different environments, we are especially vulnerable to environmental influences. So if we grow up in domination cultures or subcultures, we tend to develop a brain neurochemistry adaptive to these highly stressful environments.

Neuroscience shows that traumatic or chronic stress leads to high levels of the hormone cortisol and the neurotransmitter norepinephrine—chemicals associated with problems of impulse regulation and propensity to violence. Conversely, free circulation of the neurotransmitters dopamine and serotonin, the hormones oxytocin and vasopressin, and other substances involved in bonding and empathy, is associated with the less violent, more caring behaviors characteristic of the partnership system.

Since how people respond to stress is modulated by genetic factors and behavioral choices, there are individual variations in the resulting patterns of brain

neurochemistry. But the key point is that there are central tendencies in different cultural environments.

As adaptations to the stress inherent in domination systems, people tend to develop neural and biochemical patterns that trigger fight-or-flight and/or disassociation responses. Rather than facing and dealing with a situation rationally, they often blank out, automatically want to flee, or go into a physical or psychological attack mode. I say often, because some people who have experienced horrendous traumas do not seem to exhibit this damage. But the chronic stress inherent in domination systems tends to inhibit the expression of our genetic capacity for consciousness and caring.

For instance, domination cultures create self-perpetuating patterns of economic scarcity due to misdistribution of resources to those on top, lack of funding for health and education, diversion of resources into weaponry, and destruction of resources through war and other forms of violence.[35] All this creates stress, and with it, a general sense of anxiety, insecurity, and fear, which affects brain function.

Domination systems also create stress by failing to invest in the work of caregiving, still primarily performed by women. [36] This in itself perpetuates cycles of poverty, as evidenced by global statistics showing that the majority of the world's poor are female, and that a major reason for this is that in domination systems women are expected to do this caregiving work either for very low wages in the market or for free in households, with no pensions or other retirement benefits.[37]

These are some of the economic reasons why domination-oriented cultures are so stressful. Of course, for those at the bottom of domination hierarchies, there is even further stress. For example, children living in extreme poverty are often hungry, even in rich nations such as the United States. Poor children often live in unsafe, vermin-infected housing, or are homeless. Children living in less extreme poverty also tend to live in dangerous neighborhoods, with poor schools and parents stressed by economic hardships.[38]

As Professor K. Luan Phan of the University of Illinois at Chicago College of Medicine notes, the stress-burden of growing up poor may help account for the relationship between poverty as a child and emotional and cognitive problems in adults. Phan and his colleagues conducted a study showing that subjects who had lower family incomes at age nine exhibited, as adults, greater activity in the amygdala, an area in the brain known for its role in emotions, including fear. They also showed less activity in areas of the prefrontal cortex, a part of the brain related to regulating negative emotion.[39]

Then there is the stress inherent in the punitive and authoritarian parenting styles needed for domination systems to maintain themselves. Ensuring that children "adapt" to domination cultures requires childrearing that relies heavily on fear or force. And for parents to teach children to conform to top-down control, empathic love has to be distorted and even suppressed.

In addition, studies show that mothers who are stressed, whether from their own early experiences or from unsafe relations with a husband or live-in male, are more likely to be abusive and/or neglectful of their children.[40] Where domination norms prevail, mothers also get little help from males because caregiving is not considered appropriate for "real men," further contributing to maternal stress.[41] Moreover, despite rhetoric about the importance of mothering, in most world regions caregiving is not given government-supported training or financial assistance.[42]

All this directly affects how the brain develops. For instance, neuroscientists have found a strong relationship between nurturing and the size of a child's hippocampus, a brain region important to learning, memory, and response to stress. Brain scans showed that children whose mothers nurtured them early in life had brains with a larger hippocampus and were less stressed.[43]

The level of stress in schools also varies depending on the degree to which a culture or subculture orients to the domination or partnership side of the continuum. For example, not so long ago in the West physical punishment was routine in schools, as is

still the case today in many world regions. Fear was a major motivator routinely used by teachers, causing children enormous stress. Sadly this is still the case in many areas of the globe.[44]

Working conditions also tend to be stressful in cultures and subcultures orienting closely to the domination system. Workplaces are frequently unsafe and/or unsanitary, as in the sweatshops highlighted in news stories about the collapse of buildings in Pakistan and Bangladesh that caused the death of thousands of workers. Even when conditions are better, hierarchies of domination in themselves generate stress.[45]

By contrast, workers in companies where they have more autonomy and power to make decisions report less stress and more job satisfaction.[46] These more partnership-oriented settings facilitate greater flexibility, creativity, ability to work in teams, and other capacities that make for greater productivity. This offers advantages for both employees and employers—a subject addressed in *The Real Wealth of Nations*.[47]

Then there is the large gap between haves and have-nots characteristic of domination systems. While one might think this gap adversely affects only the people on the bottom economic rungs, studies of inequality show that it adversely affects those on top as well. It turns out that status and wealth gaps make everyone—including the rich and powerful—more stressed, anxious, and insecure.[48] For one thing, hierarchies of domination tend to make the people on top psychologically disconnected from those around them—not only from those below them, but from others like them. For instance, a 2010 study published in *Psychological Science* found that people of higher socioeconomic status were worse at reading other peoples' emotions, were more self-absorbed, and exhibited less empathy for others.[49] And, as University of California, Berkeley, researcher Paul Piff put it, "Being compassionate, having empathic accuracy, being trusting and cooperative—these are keys to social connection and, in turn, happiness."[50]

The fact that being on the top of domination hierarchies can lead to disconnection from others also helps explain why, once a certain level of economic security is reached, more money and status does not translate into more happiness—and can actually lead to less. This is verified by international surveys showing that the happiest nations also tend to be those with the least inequality: nations such as Sweden, Norway, Iceland, Finland, the Netherlands, and Denmark.[51] Not surprisingly, these nations orient more closely to the partnership side of the partnership/domination continuum.

Not only these nations' international happiness ratings, but also their compassion ratings are higher—as illustrated by the fact that they invest a larger percentage of their GDP in aid to people in the developing world. [52] (I should add that the people they help are *not* genetically related to them, in contradiction of sociobiological dogma).

Of course, these are not ideal nations. But they provide empirical evidence that our human capacities for empathy, compassion, and caring are more likely to be expressed in partnership-oriented environments—and, as the studies we just looked at show, that this environment correlates positively with higher levels of happiness.[53]

Conclusion

As I noted earlier, bio-culturalism theory is still under construction. But based on what we are learning from neuroscience, we can predict that many people living in domination environments will develop habitual neurochemical patterns of fight-or-flight and dissociation and denial to adapt to the stress inherent in rigid rankings backed up by fear and force. We can also predict that most people accustomed to accepting human rights violations in their day-to-day relations, especially in their families, are not likely to create institutions where human rights are respected. Nor are they likely to build the "culture of peace" envisioned by the United Nations, in which children will be safe, loved, and supported in the full development of their human potentials.

In short, domination cultural environments tend to keep people trapped in an arrested state of development focused on what psychologists call "defense" or survival needs rather than "growth" or actualization needs. In this sense, domination environments keep humanity stuck at a less advanced level of evolution. Partnership environments, on the other hand, support rather than interfere with the full development of those qualities that make us truly human: empathy, consciousness, creativity, and love.

This brings me to a final point. The scientific community can play an important role in the movement toward partnership by contributing to the construction of the integrative framework provided by bio-culturalism. This is why I want to close with an invitation to members of all disciplines to contribute your research and thinking to accelerate the cultural transformation from domination to partnership so urgently needed in our time when high technology guided by an ethos of domination and conquest could take us to an evolutionary dead end. This is our great historic challenge—and opportunity.

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[2] Eisler, R. (in progress). *The cultural brain: How the cultures we create shape our minds and lives*.

[3] In their analysis of capitalism and socialism, Marx, and particularly Engels, did give a sideling glance to the female half of humanity when they noted what they called the first class oppression: that of women by men. But, except in some passages in Engels' *Origin of the Family* and an occasional paragraph in Marx's writings, they viewed this issue as a peripheral "woman question" rather than a key social issue.

[4] The categories democratic/authoritarian come closest to partnership and domination, but they are generally used only to describe political arrangements (the presence or absence of "free elections"), and are only occasionally used to also denote family structures. Moreover, they do not describe other key components of social systems, such as economics, religion, and education.

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[10] In contrast to the view that technological modes of production determine social organization, cultural transformation theory takes into account evidence that cultures with the same technological base can have different structures and beliefs depending on the degree they orient to either end of the partnership-domination continuum. For example, instead of the dehumanizing assembly lines of industrialization in times that oriented more to the domination side of the continuum, in the 1960s more partnership-oriented Sweden and Norway introduced what became known as industrial democracy where workers controlled their manufacturing work.

[11] Hare, B., Wobber, V., & Wrangham, R. (2011). The self-domestication hypothesis: evolution of bonobo psychology is due to selection against aggression. *Animal Behaviour*, 83, 573-585. Because this theory posits that bonobos began to split off from chimpanzees about two and a half million years ago, it has been criticized. For example, Frans de Waal noted that it is not clear if bonobos evolved from a chimplike ancestor or vice versa. If the latter is true, then the question is why chimps became so aggressive, rather than why bonobos evolved to be nicer. (De Waal quoted in Yong, E. (2012). Tame Theory: Did Bonobos Domesticate Themselves? In *Scientific American*. Retrieved from: http://www.scientificamerican.com/article.cfm?id=tame-theory-did-bonobos&page=2). But in either case, the question remains of what led to such very different cultures.

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[20] This is in line with other new theories, such as those of Gould and Eldredge and Csanyi and Kampis, which posit certain bifurcations when "peripheral" isolates may or may not give rise to a new living system. (Csanyi, V. (1989). *Evolutionary systems and society: A general theory*. London, United Kingdom: Duke University Press; Eldredge, N. and Gould, S. J. (1972).["Punctuated equilibria: An alternative to phyletic gradualism"] In Schopf, T.J.M. ed., *Models in paleobiology*. San Francisco: Freeman Cooper. pp. 82-115. Reprinted in Eldredge, N. *Time frames*. Princeton: Princeton Univ. Press, 1985, [pp. 193-223]

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[35] Eisler, R. (2007).

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[37] For example, even in the wealthy United States, according to U.S. Census Bureau statistics, women over the age of 65 are twice as likely to live in poverty as men of the same age. See Bennetts, L. (3-28-2012). Census data reveals elder women's poverty crisis. *Daily Beast*. Retrieved from http://www.thedailybeast.com/articles/2012/03/28/census-data-reveals-elder-women-s-poverty-crisis.html

[38] Not only emotional but also cognitive development is affected by the stresses inherent in chronic poverty. For example, a French study of 20 children who had been abandoned in infancy by their low-socioeconomic-status parents and adopted by upper-middle-class parents showed that the adopted children's biological siblings or half-siblings who remained with the biological mother and were reared by her in impoverished circumstances were four times more likely to exhibit failures in their school performance. The adopted children's IQs also averaged 14 points higher than those of their natural siblings (Schiff, M., Duyme, M., Dumaret, A. & Tomkiewitz, S. (1982). How much could we boost scholastic achievement and IQ scores? A direct answer from a French adoption study. *Cognition,* 12, 165-196.).

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[40] When poverty is accompanied by the danger and distress of living in neighborhoods with gangs or other street violence, there are still more sources of stress. In these environments, parents will also

be more likely to be harshly controlling of their children, if only because of fear for their safety. In the United States, both domestic violence and street crimes are more frequent in poor neighborhoods, particularly urban ones where there is high population density, high population turnover, and high levels of family disintegration (U.S. Department of Justice, 1992). Therefore, children and parents living in such neighborhoods can often be expected to have the kinds of neurochemical profiles associated with chronic stress. Repetti,R.L., Taylor, S.E., & Seeman, T.E. (2002). Risky families: Family social environments and the mental and physical health of offspring**.** *Psychological Bulletin*, 128, 330-366

[41] On top of their caregiving work, mothers are expected to do all the cooking, cleaning, shopping, washing, and other chores that maintain life. If they work outside the home, they are still expected to do all this after-hours. Not surprisingly, women worldwide work significantly more hours than men, and often suffer from stress due to overwork. Particularly when lack of money, living in decaying housing and run-down neighborhoods, and other hardships are added to these factors, life for mothers is extremely stressful – with adverse effects not only for them but for their children. And when women are physically abused by the men in their lives, the stress is aggravated even more. This in turn often leads to parenting behaviors that are extremely stressful to children.

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[51] See World Database of Happiness at: http://www1.eur.nl/fsw/happiness/hap_nat/nat_fp.php?mode=6

[52] Official development assistance by country as a percentage of Gross National Income in 2012 at: http://en.wikipedia.org/wiki/List_of_governments_by_development_aid

[53] Studies show that people are actually happier when they help others rather than when they just look out for themselves. A striking example is research by University of British Columbia psychologists Lara Aknin and Elizabeth Dunn showing that spending money on others makes you happier than spending on yourself. Even more striking is a study headed by George Moll of the National Institutes of Health demonstrating that when altruistic choices prevail over selfish material interests, these choices activate brain regions associated with psychological rewards of pleasure. See: Moll, J., Krueger, F., Zahn, R., Pardini, M., de Oliveira-Souza, R. & Grafman, J. (2006). Human fronto–mesolimbic networks guide decisions about charitable donation. *PNAS,* 103, 15623-15628.

Riane Eisler, JD, PhD (h), is a systems scientist best known as author of *The Chalice and the Blade: Our History, Our Future* (now in 25 foreign editions) and *The Real Wealth of Nations: Creating a Caring Economics*. She is president of the Center for Partnership Studies, and consults for business and governments on applications of the partnership model introduced in her work. She is author of other award-winning books and over 500 articles and book chapters, taught at UCLA and Immaculate Heart College, and currently teaches in the graduate Transformative Leadership Program at the California Institute of Integral Studies. She keynotes conferences worldwide and sits on many boards and councils, including the World Future Council and the Club of Rome. She is founder of the Caring Economy Campaign and co-founder of the Spiritual Alliance to Stop Intimate Violence with Nobel Peace Laureate Betty Williams. Dr. Eisler has received many honors for her work for peace and human rights, including honorary Ph.D. degrees and the Nuclear Age Peace Foundation's Distinguished Peace Leadership Award.

Correspondence about this article should be addressed to Riane Eisler, JD, PhD (h), at eisler@partnershipway.org