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THE ARTS AND THE RADICAL ENLIGHTENMENT: GAINING LIBERTY TO SAVE THE PLANET

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The arts have been almost completely marginalized— at a time when, arguably, they are more important than ever. Whether we understand by “the arts” painting, sculpture, and architecture, or, more broadly, the whole aesthetic realm and the arts faculties of universities concerned with this realm, over the past half century these fields have lost their cognitive status. This does not mean that there are not people involved in the arts, but they do not have the standing that participants in these fields once had. The arts lost the battle of the “two cultures”; science prevailed over the arts and humanities. Architecture is being redefined as an applied science rather than one of the arts. The arts were then finally routed (with hardly a fight) by economists. They have been absorbed into the advertising, entertainment, decoration, and building industries, and, as universities have been transformed into transnational business corporations, arts faculties have lost their reasons for existence.

Why should this matter? This loss of cognitive status of the arts is often characterized as part of the postmodern condition, celebrated by deconstructive postmodernists as somehow liberating. Postmodernist indifference to this cultural transformation can be justified by pointing out the historical relativity of our categories. Benedetto Croce and other cultural historians noted long ago that the modern system of the arts crystallized only in the eighteenth century.¹ It was only then that the term “aesthetics” was coined, and it was only then that the philosophy of art was invented. So, does it matter if this formation falls apart and is replaced by something else?

To answer this question it is necessary to look more closely at the formation that has triumphed. Pierre Bourdieu provided a far clearer picture than have the postmodernists of what has been happening: “[T]he

hard-won independence of cultural production and circulation from the necessities of the economy is being threatened, in its very principle, by the intrusion of commercial logic at every stage of the production and circulation of cultural goods.”² All cultural fields are being dissolved into the economic field, destroying the economic and social bases of the most precious cultural gains of humanity. Everything must now be evaluated in terms of its potential for profitable exploitation. This includes science, which now survives as techno-science, valued almost solely as a means to control Nature and people more profitably. Furthermore, local economic fields are also dissolving. We are moving toward a world where there is just one global market. The world is almost totally dominated by the prime actors within the global market: the managers of transnational business corporations; government institutions facilitating the control, growth, and expansion of these corporations; and the priesthood of neoclassical economists who legitimize the domination of the world by the market.

What is at stake is not just the arts, however, or even communities, democracy, and the welfare state. It is the global ecosystem, which with continued growth of corporate profitability and managerial power will be totally undermined within a few decades. According to James Lovelock, by the end of the century most life on Earth will be destroyed and only a few hundred million humans living near the North Pole will survive.³

CLARIFYING THE SITUATION: ART, SCIENCE, AND NATURE

It is this very triumph of the global economic field and the catastrophe it promises that has clarified the debate between the “two cultures.” An argument could be made that it has been the arts that have aligned themselves with Nature against Newtonian science and its offspring, mainstream economics, and that the marginalization of the arts and the destruction of Nature are two sides of the same coin. It was the Romantics who rebelled against Newton’s dark vision and exalted Nature, and this rebellion continued through the art of William Turner and the impressionists, and in the “modernist” art of

Paul Klee. The arts and humanities, concerned with the meaning of life, opposed the scientific conception of the world as devoid of meaning, as inert matter moving meaninglessly and endlessly, and opposed science's drive for domination. They fostered respect for Nature as well as for people and, through the influence of thinkers such as John Ruskin, Mathew Arnold, and William Morris, their rebellion humanized society, overcoming much of the brutality of the industrial revolution. Defense of Nature requires a revival of the arts.

This is too simple, however. As Romanticism gave way to Idealism as the main opposition to Newton's cosmology, many proponents of the arts turned their backs on Nature.⁴ Furthermore, the most effective opposition to assumptions on which the new order is based has come not from the arts but from climate scientists and ecologists. These scientists are promoting a tradition within science that developed in opposition to the mechanistic worldview of Newton and the economists, and in doing so have forced at least some people to face up to the threat that current modes of thought pose to the future of life. What the current crisis exposes is something far more important: the complicity of opposing sides of the "two cultures" in silencing the real opposition to the dominant mechanistic worldview. The real opposition to the dominant culture came from those refusing to accept the opposition between the two cultures by challenging mechanistic thought within science. The authentic radicals proposed and developed a more dynamic, holistic view of Nature, a view that acknowledges the reality of life and creativity and that situates humans as creative participants within Nature. It is these radicals who have valued the arts most highly.

Many recent proponents of this genuinely radical position have been scientists and philosophers of science. Ilya Prigogine and Isabelle Stengers have promoted nonlinear thermodynamics as the basis for a new alliance between science and the humanities. The physicist David Bohm engaged in an extended dialogue with the artist Charles Beiderman on the relationships between science, mathematics, and art. Earlier, C. H. Waddington, a founder of the theoretical biology movement, wrote a book on modern art. His most eminent student, Brian Goodwin, argued that complexity theory goes to the heart of the sciences and the arts, providing the basis for their reconciliation. Perhaps the most concerted effort to

overcome the opposition between the arts and the sciences has come from bio-semioticians such as the Danish biologist Jesper Hoffmeyer. A major contribution to this challenge has come also from the architectural theorist Christopher Alexander. Developing a radically different conception and practice of architecture, reaffirming its position as an art, he has generalized his ideas from architecture to develop a new version of complexity theory. This has enabled him to characterize the forming activity of building as a special case of the forming activity of life, and to situate it in the context of the forming activity of the rest of Nature. Just when the arts and humanities seem finally to have lost to the sciences, there appears to be a new dawn, a new vision of post-mechanistic science aligned with the cognitive claims of the arts and the humanities. The proponents of this view all have been concerned to confront the impending ecological catastrophe, and have seen their work as providing the forms of thinking required to overcome it.

Despite their brilliance, each of these thinkers has had to struggle against a hostile intellectual environment, with the opponents often unwilling even to consider his or her ideas, let alone take them seriously. How can this marginalization be avoided? The most effective way is to situate and defend these thinkers as part of a broader, coherent tradition of thought. What is this tradition? Most obviously, it is a tradition opposing the mechanistic worldview by upholding a non-reductionist naturalism. It is now coming to be appreciated that this is a tradition of thought that originated in the Renaissance. The rise of the "mechanical philosophy," which previously had been interpreted in relation to medieval thought, is now better understood as the counter-Renaissance, part of a struggle to subvert the influence of Renaissance thought. The success of this subversion led to a further counter-movement to revive and develop the tradition of Renaissance thought. This is what is now coming to be known as the "Radical Enlightenment." This is the tradition of the true radicals.

THE RENAISSANCE AND THE COUNTER-RENAISSANCE

It is now evident that the Renaissance was not merely a rebirth of Roman and Greek thought; it was a rebirth of the struggle for autarchy or liberty that had disappeared from the Ancient world with the

defeat of the Greek city-states and the overthrow of the Roman Republic. Liberty, always understood in opposition to slavery, meant for Renaissance thinkers being part of a self-governing community in which they were not dependent on others who could harm them.⁵ The rediscovery of Latin and Greek thought and the cultural flowering of the Renaissance was part of the struggle to preserve the liberty gained by the city-states of Italy from the German kings, from the Roman Catholic Church, and from factionalism and despotism within.⁶ Florence, as the center of the defense of liberty, became the center of Renaissance culture and the center of the arts.⁷ This was associated with the development of humanist education consisting of grammar, rhetoric, poetry, history, and moral philosophy, designed to develop the virtues required to uphold liberty as well as to provide the knowledge required to participate in the community's institutions. It was in this context that the visual arts—painting, sculpture, and architecture—came to be recognized as part of the liberal arts, and of vital importance to society.⁸ For Renaissance thinkers, one of the most important aims of government was the development of the arts, both mechanical and liberal, including engineering, rhetoric, poetry, music, painting, sculpture, and architecture. Academies of all kinds were established to this end. This tradition of thought has come to be known as "civic humanism."

The interests of Renaissance thinkers extended beyond the moral and political domains, to "the general situation in which human beings find themselves on earth, in the chief forces determining this situation, and in the place man and his world occupy with the larger universe."⁹ Renaissance philosophy of Nature culminated in "Nature enthusiasm," the most original exponent of which was Giordano Bruno. Bruno identified the divine One of Neo-Platonic thought with matter and so considered matter not as merely a potential to take on forms but rather as active and creative, pregnant with the forms, and on this basis revived the evolutionary cosmology of the pre-Socratics. This cosmology was not in conflict with civic humanism but supported and radicalized it, along with democratic republicanism. Further, it did not involve conflict with the arts, but augmented them.

The civic humanism and Nature enthusiasm of Renaissance Italy spread throughout Europe, stimulating the quest for liberty from feudal

dynasties and the quest for democratic republicanism in Switzerland, the United Provinces of Holland, France, and Britain. This generated a fierce reaction, particularly in France and Britain. Marin Mersenne, a lifelong friend of Descartes, characterized Bruno as "one of the wickedest men whom the earth has ever supported ... who seems to have invented a new manner of philosophizing only in order to make underhand attacks on the Christian religion."¹⁰ Mersenne initiated the quest to develop an alternative system of thought. That alternative system—the mechanical philosophy—was provided by Descartes.¹¹ Hobbes, another friend of Mersenne and a fierce critic of the civic humanists and Nature enthusiasts in Britain, also took up the project of developing this mechanical philosophy. He attempted to reformulate the understanding of humans and society, characterizing people as machines moved by appetites and aversions and society as a social contract between these egoistic individuals. On this basis he attempted to transform the language of politics, not merely to oppose the ideas of the civic humanists but also to make their ideas unintelligible.¹² He redefined liberty as not being hindered from acting according to one's powers.¹³ Justice he redefined as simply that which is lawful, whatever the laws happen to be. He denied any connection between freedom and participation in the public life of an autonomous society. In society people are free, Hobbes argued, when through fear of the consequences of disobeying laws they acquire a will to obey the laws.¹⁴ Freedom therefore is compatible with rule by tyrants, the form of absolutist rule Hobbes was defending. Assuming that people are always egoists, he gave no place to the cultivation of virtues. He dismissed history, poetry, and every other discourse not concerned with how to control the world, make agreements, or give orders, as mere amusements.

Stephen Toulmin aptly characterized Descartes's work and influence as the "counter-Renaissance."¹⁵ A feature of this counter-Renaissance was the claim to absolute truth through the application of a method, the origin of what later came to be known as "scientism," while denigrating narratives, metaphors, and other literary tropes cherished by Renaissance thinkers. And, as Louis Dupré pointed out, "The engineer replaced the artist as model of the age."¹⁶ Newton and Locke developed a diluted version of the mechanistic philosophies

of Descartes and Hobbes to promote what C. B. MacPherson called "possessive individualism."¹⁷ This formed the core of the economic theory of Adam Smith and, later, of the neoclassical economists, who in turn provided the metaphors for Darwinism and Social Darwinism. From the perspective of this worldview, art, dealing with "secondary qualities" existing only in the minds of perceivers rather than in reality, can be nothing but a form of amusement. Ultimately, it is on this basis that the central place given to the arts in the Renaissance has been replaced by the view that "aesthetics concerns matters of mere taste, and the arts are a luxury (rather than conditions of human flourishing)."¹⁸

REVIVING RENAISSANCE CULTURE: THE RADICAL ENLIGHTENMENT

The defeat of Renaissance thought was not complete, however. In Holland, under the cover of a revised Cartesian philosophy, Spinoza continued to advance Renaissance thought.¹⁹ In Britain, after the defeat of the civic humanists and Nature enthusiasts following the English Revolution and the Glorious Revolution, John Toland (the Earl of Shaftesbury) and others strove to revive democratic republicanism, and to this end defended civic humanism and Bruno's cosmology. This is what Margaret Jacob labeled the "Radical Enlightenment,"²⁰ a movement much more democratic and egalitarian than the "moderate enlightenment" dominated by the thought of Newton and Locke. The Radical Enlightenment promoted a non-mechanistic form of science and defended the arts as essential to human flourishing.

One of the most important figures of the Radical Enlightenment was Johann Gottfried Herder (1744–1803). Herder embraced and developed the tradition of civic humanism while making a general attack on the mechanistic view of Nature, atomic individualism, and the utilitarianism of the moderate Enlightenment.²¹ He argued that Nature consists of forces which, through conflict, generate a hierarchy of forms, and in place of utilitarianism, Herder promulgated an ethics of self-expression or self-realization. The concept of "culture" was central to his thinking. He argued that each nation had its own culture, using this notion to refer to language, everyday practices, and technology as well as to art, literature, science, and philosophy. It is through culture that we create ourselves, he argued. He

viewed poetry as particularly important. "A poet is the creator of a people; he gives it a world to contemplate," Herder wrote, although at the same time he argued that the poet is to an equal extent created by the people.²² He saw poetry to be "the expression of the highest aspirations" of a nation.²³ However, all arts are important in this regard, and as Isaiah Berlin noted, Herder "believed from the beginning to the end of his life that all men are some degree artists, and that all artists are, first and last, men—fathers, sons, friends, citizens, fellow worshippers, men united by common action."²⁴

Herder had an immense influence on the subsequent history of Europe—and of the world, mediated by those he influenced: pre-eminently Goethe, Schelling, and the early Romantics, but also Hegel, Alexander and Wilhelm von Humboldt, and J. S. Mill. It is these thinkers who upheld liberty as self-determination within free, self-governing communities, in opposition to Hobbes's debased notion of freedom. This became the center of a tradition of political philosophy alternative to that deriving from Hobbes and Locke.²⁵ It is this tradition that revived the quest for democracy, from local communities to world government, in opposition to the subordination of communities to the market. Further, this tradition has been associated with upholding Herder's notion of education as *Bildung*, the formation of the character of people as autonomous, self-actualizing agents. Subsequently, this view defined the goal of the humanities in universities. It was Herder's ideas that underlay the Humboldtian model of the university in which the arts faculty was given central place, and that accorded a central place to the arts as essential to education. At the same time, through his influence on Goethe and Schelling, Herder inspired the development of *Naturphilosophie*, and it was this anti-mechanistic tradition of science that inspired the development of ecology and the core ideas of recent climate science.²⁶

The subsequent history of European culture was not simply a struggle between the heritage of Renaissance thought as revived by Herder on the one side and the Cartesian/Hobbesian tradition on the other, however. This opposition has been confused. The recent revival of neoclassical economics and the triumph of neoliberalism, reviving Hobbesian thought and Social Darwinism under the banner of "democracy," is the outcome of this confusion, and the ineffectuality of opposition to it an indication of the

extent to which most of the heirs of the Radical Enlightenment had lost the plot.

REVIVING THE RADICAL ENLIGHTENMENT

This brings us back to those Renaissance figures of recent years who have defied the opposition between the "two cultures." These are the true heirs of the Renaissance and the Radical Enlightenment. They are involved in developing or in aligning themselves with developments in science which (echoing Renaissance science) supports and extends the view of humanity purveyed by the humanities and justifies the central place accorded to the arts in the Renaissance and by members of the Radical Enlightenment.

One of the most important facets of this revival is rescuing science as the quest to understand the world from techno-science, the reduction of inquiry to means to control Nature and people to improve corporate profitability. That ecologists and climate scientists have been able to have their voices heard is a tribute to the success of such efforts. However, the failure of governments to do anything significant to address the problems we face shows that this by itself is not enough. One of the most important problems is the failure to properly appreciate the importance of the arts.

Why are the arts so important? Some idea can be gained from the work of Mark Johnson. Johnson has been dealing with aspects of experience traditionally regarded as the purview of aesthetics. Aesthetics, he concludes, "becomes the study of everything that goes into the human capacity to make meaning. This entailed that an aesthetics of human understanding should become the basis for all philosophy, including metaphysics, theory of knowledge, logic, philosophy of mind and language, and value theory."²⁷ While so-conceived aesthetics concerns more than the arts, the arts are central to aesthetics and can no longer be thought of "as a minor, non-practical wholly subjective dimension of human life." The arts "are exemplary cases of consummated meaning."²⁸ This has led Johnson to revive John Dewey's view that "the arts are important just insofar as they help us grasp, criticize, and transform meanings and values."²⁹ Without this grasping, criticizing, and transforming of meanings and values through the arts, ethical and political discourse promoting liberty are mere verbiage.

Important as Johnson's work is, however, it is limited by its neo-Kantian and phenomenological point of departure. It fails to fully acknowledge that we are part of the physical and biological world, having physical form, living in built-up environments, and interacting with other life forms, and that meaning-making is participating in the meaning-making of the world.

THE ARTS IN COSMOLOGICAL PERSPECTIVE: CHRISTOPHER ALEXANDER AND BIO-SEMIOTICS

What does it mean for the elevation of the arts to be conjoined with a cosmology that gives a place to creativity and feeling and to the arts as central to the development of these? To begin with, meaning "making" is related to the meaning of other participants in Nature and society, and is meaning "revealing" and "illuminating" as much as "making." It is meaning "augmenting."

One way of understanding this meaning augmentation in the broader context of both society and the rest of Nature is to consider building and other forming activities of humans as specific instances of morphogenesis in Nature. This is the approach of Christopher Alexander. Another way of appreciating augmentation is through Peircian semiotics. This allows us to see human culture as a contribution to what Hoffmeyer has called the "semiosphere."³⁰ From a biosemiotic perspective, life is virtually identified with semiosis, with the growth of form, actions, and thought being different levels of the production and interpretation of signs, an endless process as interpretants (which can be forms, actions, or thoughts expressed in symbols) themselves become signs for further interpretation. Semiosis is taken to be central to the functioning of organisms, communities, ecosystems, and human societies, while symbiosis, which is far more important to evolution than is the competitive struggle for survival, generally involves semiosis. Evolution takes place through the development of new forms of semiosis, making possible new forms of symbiosis. Here I want to consider the work of Alexander from a semiotic perspective, extending semiotic theory in the process.

One of the most important achievements of Alexander is to have revived the concept of beauty as a real quality in the world, to have shown what this beauty consists in, and to have shown how it is

generated. It is also to have shown the relationship between beauty and the feeling of wholeness, particularly as this is involved in creating beautiful structures. Alexander argues that more beautiful buildings are seen as more alive, and that beautiful built-up environments both are the product of and are conducive to the vitality of communities. The feeling for the whole, and the sense of wholeness involved in making the world more beautiful, is a feeling for life. Alexander further argues that "feeling" should not be regarded as merely subjective or equated with emotion: "It is a feeling in the singular, which comes from the whole," he explains. "It arises in us, but it originates in the wholeness which is actually there. The process of respecting and extending and creating the whole, and the process of using feeling, are one and the same. Real feeling, true feeling, is the *experience* of the whole."³¹ Production is "unfolding from the whole." It is associated with care for existing centers of life, producing so that what is produced augments what is already alive. It is this, Alexander points out, which makes building into structure-preserving transformations consisting of centers that augment each other, forming hierarchies of patterns of centers. It is these structures that people recognize as alive. Appreciation of beauty then is appreciation of life and, specifically, of the way component centers of what is alive contribute to each other and to the life of the whole. While these ideas were developed in relation to architecture and town planning, Alexander argues that the insights gained in these fields can be generalized to all the arts and to understanding what is life generally.

This relationship between forming activity, patterns, beauty, and feeling for the whole highlights a lacuna in semiotic theory. Peircian semioticians assume that signs are signs of external objects.³² The signs that people are interpreting and responding to in appreciating life and what is beautiful, particularly by those engaged in generating beautiful structures, are interrelated centers augmenting each other, and centers of centers, better understood as aspects of processes rather than objects, processes of which their interpreters are often participant centers rather than external observers. And it is these signs and the capacity to respond to them that are essential to living order.

What is distinctive about this kind of semiosis can be clarified through the work of a theoretical

biologist with ideas very similar to Alexander's, Mae-Wan Ho. Ho argues that it is the independence of local centers of an organism and their sensitivity to the whole that define organic order. As she puts it:

The stability of organisms depends on all parts of the system being informed, participating, and acting appropriately in order to maintain the whole. Organic stability is therefore delocalized throughout the system.... This is the radical nature of the organic whole (as opposed to the mechanical whole), where global cohesion and local freedom are both maximized, and each part is as much in control as it is sensitive and responsive.³³

What this suggests is that something like a feel for the whole by constituents of living beings with autonomy, as centers within the whole, is ubiquitous in the living world. The breakdown of such semiosis in organisms is characteristic of cancer.

The feel for the whole by humans associated with the experience of beauty can now be seen as only a special case of this form of semiosis. The visceral revulsion against the destruction or damaging of anything beautiful is part of the natural order, and constrains people's actions and what they produce to augment the social and ecological whole and the various centers that contribute to it. It is a cognitive capacity which, engaging people's deepest feelings, constrains them to augment the ecological and environmental conditions for human flourishing and the flourishing of life generally, in the long term.

THE PLACE OF THE ARTS IN SOCIETY AND NATURE

When viewed from this perspective, the importance of the arts in both reviving democracy and confronting our environmental problems should become clear. Strong democracy requires and must foster in its participants a feel for the whole, and with it, a strong sense of beauty in their everyday lives, and so requires and tends to foster the arts to develop this, thereby fostering the form of semiosis that constrains people to augment life. The counter-Renaissance, on the other hand, threatened by such feelings in people, dismisses them as belonging to the realm of amusements, stultifying their development and thereby making people more controllable.

Characterizing the arts as the quest for beautiful structures, living structures which augment other

living structures, most straightforwardly applies to architecture where the concern should be to augment the lives of people who will occupy the buildings; but what does this mean when applied to painting or sculpture? All art is exploration and inspires as well as being useful. Painting and sculpture are exploration of living structures, revealing and illuminating structures that are alive and conducive to life. These are the structures that inspire people. Inspiration here, following Alexander, should be understood as the process of evoking the feeling of wholeness and of being whole. "Inspiring" is "augmenting meaning," stimulating people to see more clearly what is beautiful; that is, what is alive and conducive to life in the world around them, and moving them to live and produce accordingly. It is what enables them to experience the value of life.

With the arts understood in this way, we can see more clearly the significance of the marginalization of the arts associated with the latest incarnation of the counter-Renaissance: neoliberalism. Underlying not only bad architecture but also the dissolution of communities and the decay of character is the subordination of communities to the laws of the market and (as Alexander observes) the growth of Taylorist managerialism, concentrating all knowledge and power in the hands of managers.³⁴ With the spread of Taylorism, work ceases to have any artistic element within it, and workers cease being artisans and become mere laborers, the mindless instruments of managers. This is happening not only to tradesmen but to architects, journalists, teachers, academics, lawyers, and all but the most senior civil servants, and it is happening to artists. With this transformation, the sense of wholeness required of and cultivated in workers to appreciate their own roles in a collective enterprise deteriorates. This in turn undermines democracy. People reduced to mere laborers, politically disempowered and without economic security, cease developing a feel for the wholes of which they are part. They produce ugly built-up environments that isolate people and atomize communities. They gain no satisfaction or fulfillment from their work and attempt to compensate for the subsequent void through an unlimited quest for consumption and new forms of titillation. People cease being citizens who consider what will augment the common good and instead think of themselves only as taxpayers trying to reduce their taxes and get as much out of their governments as possible. This makes people manipulable, willing to

sacrifice their liberty and the liberty of their country and, more significantly in a globalized world, the liberty of other people, for the promise of more income and more goods for consumption. It is in this context that the arts have lost their place in society. This is the collapse of the form of semiosis that constrains people to augment rather than undermine the conditions for life. The market without such constraint is, as David Korten argues (under the influence of Mae-Wan Ho), a form of cancer.³⁵ Reviving the arts and the place of the arts in society is an essential part of combating this cancer. It is reviving healthy semiosis.

It should now also be clear why the arts cannot be defended successfully except as part of a broader project. The worldview and social order promulgated by the counter-Renaissance denies any significance to the arts beyond amusements (and investments). To defend the arts properly it is necessary to join the struggle of the Radical Enlightenment, upholding the Renaissance quest for liberty and democracy, defending a non-mechanistic view of Nature and of what humans are and a non-utilitarian view of the ultimate goals of life. Appreciating what it is to be a participant in the creative becoming of one's social and natural communities entailed by liberty and real democracy involves recognizing the importance of the arts in education and in life. With democracy, the people are the ultimate governors and must be educated as such. It is necessary to develop in citizens a feeling of wholeness and appreciation of beauty as a condition for achieving a sense of the common good, what contributes to this and what undermines it. This requires more than just the exposure of people to particular works of art, important as this is. It is necessary to promote the arts as central to life and to creating built-up environments that stimulate the vitality of communities. The feeling of wholeness of vital communities is conducive to appreciating and contributing to the common good of the whole of humanity and, beyond that, of the biotic community. In the modern world where the forces of the global market and its principal actors are degrading built-up environments, dissolving autonomous cultural fields, and destroying the global ecosystem, the defence of the arts should be seen as part of the struggle for liberty to maintain and augment the beauty and health of the global ecosystem. □

NOTES

1. Paul Oskar Kristeller, "The Modern System of the Arts," in *Renaissance Thought and the Arts: Collected Essays* (Princeton: Princeton University Press, 1990), 163.
2. Pierre Bourdieu, "Culture Is in Danger," in *Firing Back: Against the Tyranny of the Market 2*, trans. Lois Wacquant (London: Verso, 2003), 67.
3. James Lovelock, chap. 4 in *The Revenge of Gaia* (New York: Basic Books, 2006).
4. As Theodor Adorno noted in *Aesthetic Theory*, trans. C. Lenhardt, eds. Gretel Adorno and Rolf Tiedmann (London: Routledge and Kegan Paul, 1984), 92.
5. See Quentin Skinner, *Liberty Before Liberalism* (Cambridge: Cambridge University Press, 1998), 40.
6. Quentin Skinner, *The Foundations of Modern Political Thought*, vol. 1, *The Renaissance* (Cambridge: Cambridge University Press, 1978) and Quentin Skinner, *Liberty Before Liberalism* (Cambridge University Press, 1998).
7. See Hans Baron in *The Crisis of the Early Italian Renaissance*, rev. ed. (New Jersey: Princeton University Press), 1966.
8. Kristeller, *Renaissance Thought and the Arts: Collected Essays*, 181. The spirit of Renaissance, with its praise for beauty, liberty, and virtue, is evident in Leonardo Bruni, *In Praise of Florence*, trans. Alfred Scheepers (Amsterdam: Olive Press, 2005).
9. Kristeller, "Moral Thought of Renaissance Humanism," in *Renaissance Thought and the Arts: Collected Essays*, 57.
10. Marin Mersenne, *L'Impiété de déistes*, (Paris, 1624), 1: 230f. Translated and quoted by A. C. Crombie, "Mersenne," in *Dictionary of Scientific Biography*, ed. Charles Coulston Gillispie (New York: Scribner, 1970-80), 9: 317.
11. Crombie, 316-22.
12. Quentin Skinner, *Visions of Politics*, vol. 3, *Hobbes and Civil Society* (Cambridge: Cambridge University Press, 2002), 13.
13. See Thomas Hobbes, "Of the Liberty of Subjects," pt. 2 chap. 21 in *Leviathan* (Harmondsworth: Penguin Books, 1986), 261ff.
14. Hobbes, *Leviathan*, 262f.
15. Stephen Toulmin, *Cosmopolis: The Hidden Agenda of Modernity* (Chicago: Chicago University Press, 1994), 24 and chap. 2.
16. Louis Dupré, *Passage to Modernity: An Essay in the Hermeneutics of Nature and Culture* (New Haven: Yale University Press, 1993), 66.
17. C. B. MacPherson, *The Political Theory of Possessive Individualism: Hobbes to Locke* (Oxford: Oxford University Press, 1962).
18. Mark Johnson, *The Meaning of the Body: Aesthetics of Human Understanding* (Chicago: University of Chicago Press, 2007), xi.
19. Jonathan Israel has argued that Spinoza is the source of the Radical Enlightenment, but this does not do justice to the influence of Bruno and the civic humanists on Spinoza. See Jonathan I. Israel, *The Radical Enlightenment: Philosophy and the Making of Modernity 1650-1750* (Oxford: Oxford University Press, 2002) and *Enlightenment Contested* (Oxford: Oxford University Press, 2006).
20. Margaret C. Jacob, *The Radical Enlightenment: Pantheists, Freemasons and Republicans*, 2nd ed. (Morristown, NJ: The Temple Publishers, 2003).
21. Herder's central work on natural philosophy was *God, Some Conversations* [1787], trans. Frederick H. Burkhardt (Indianapolis: Bobbs-Merrill, 1940, 2003).
22. Johann Gottfried Herder, *Sämmlliche Werke*, vol. 8, 433, trans. and cited in Isaiah Berlin, *Three Critics of the Enlightenment*, *Vico, Hamann, Herder*, ed. Henry Hardy (London: Pimlico, 2000), 229.
23. Johann Gottfried Herder, *Against Pure Reason*, trans. and ed. Marcia Bunge (Minneapolis: Fortress Press, 1993), 143.
24. Berlin, *Three Critics of the Enlightenment*, 230.
25. See F. M. Barnard, *Herder's Social and Political Thought: From Enlightenment to Nationalism* (Oxford: Clarendon Press, 1965). On the political philosophy of the early Romantics, strongly influenced by Herder, see Frederick C. Beiser, *The Romantic Imperative: The Concept of Early Romanticism* (Cambridge, MA: Harvard University Press, 2003).
26. See H. B. Nisbet, *Herder and the Philosophy and History of Science* (Cambridge: Modern Humanities Research Association, 1970), chap. 7. On the tradition of anti-mechanistic biology, see Gerry Webster and Brian Goodwin, *Form and Transformation* (Cambridge: Cambridge University Press, 1996). On the history of climate science, see Samuel R. Wear, *The Discovery of Global Warming* (Cambridge, MA: Harvard University Press, 2003).
27. Mark Johnson, *The Meaning of the Body: Aesthetics of Human Understanding* (Chicago: University of Chicago Press, 2007), x.
28. *Ibid.*, xi.
29. Dewey, as cited in Johnson, xiii.
30. Jesper Hoffmeyer, *Signs of Meaning in the Universe*, trans. Barbara J. Haveiland (Bloomington: Indiana University Press, 1996), *passim*.
31. Christopher Alexander, *The Nature of Order: An Essay on the Art of Building and the Nature of the Universe*, bk. 2, *The Process of Creating Life* (Berkeley: The Center for Environmental Structure, 2002), 371.
32. On this, see Arran Gare, "The Semiotics of Global Warming," *Theory and Science*, Vol. 9(2), Spring 2007. <http://theoryandscience.icaap.org/content/vol9.2/Gare.html>.
33. Mae-Wan Ho, "On the Nature of Sustainable Economic Systems," *World Futures* No. 51 (1998): 199-211, as quoted by David C. Korten in *The Post-Corporate World: Life After Capitalism* (San Francisco: Berrett-Koehler Publishers, Inc., 1999), 109.
34. Alexander, *The Nature of Order*, bk. 2, 515.
35. David Korten, *The Post-Corporate World* (San Francisco: Kumarian Press, 2000), 15.