

ENVIRONMENTAL STEWARDSHIP

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An important consultation was held at Windsor Castle September 15-17, 2000 by the John Ray Initiative to “explore the value and robustness of stewardship as a theological, philosophical, scientific and pragmatic concept”, “to investigate the biblical and traditional roots of stewardship...and enquire whether these provide an adequate description for general use in the secular as well as religious context.” Its origin was a 1999 JRI consultation in London on *A Christian Approach to the Environment* (published in *Transformation* 16 3, July 1999).

Stewardship had emerged as a key idea at the London meeting in 1999. Sir John Houghton, in his summary of this consultation, wrote, “*Some thought that the use of the word ‘stewardship’ tended to be too anthropocentric and to create a misleading impression regarding our relationship to the environment — although most seemed to agree that it was the best word available.*”

The announcement of the consequent consultation in 2000 noted that “The common model of stewardship as the basis for responsible environmental care has received considerable criticism, both from those who regard any management of nature as either impious or impractical. And from those who believe the notion is inadequate or misleading. Alternative suggestions for an acceptable human relationship to the environment include manager, trustee, tenant, curator, guardian friend, co-creator.” Yet, “the concept of stewardship has a long history in Judeo-Christianity, despite an equally venerable tradition that God gave creation to men and women for their own use and pleasure.”

And so, the Windsor Consultation was organized to consider “the common model of stewardship” for addressing the environmental issues of our day. It was based upon the conclusion that “Establishing a proper relationship between humanity and its environment has become an urgent practical matter now that we recognize our actions are having damaging and perhaps disastrous effects. The purpose of this Consultation is to explore the value and robustness of stewardship as a theological, philosophical, scientific and pragmatic concept and to examine other possible models. The intention is to investigate the biblical and traditional roots of stewardship, together with any implications from scientific perspectives, and to enquire whether these provide an adequate description for general use in the secular as well as religious context.

Four main presentations were arranged for Windsor, by a philosopher, Robin Attfield of Cardiff (Wales); a theologian, Dr. Murray Ray, King’s College London; a biologist and environmental scientist, Calvin DeWitt of Madison, Wisconsin; and a ‘biogeochemist’ and originator of the ‘Gaia Hypothesis’, James Lovelock. Their papers were circulated two to three weeks before the meeting, and each was given a half-day for its presentation and subsequent discussion by about “two dozen key thinkers” JRI had invited to participate. The consultation was opened by an introductory paper by R. J. Berry, and concluded with a final presentation to be given by one of the four speakers to be selected by JRI leadership the evening before the concluding Saturday morning session. On Friday evening John Houghton announced that person would be Cal DeWitt.

The plan of the consultation was to publish the papers and the conclusions of the Consultation as a contribution to the scientific and theological understanding of environmental stewardship and especially its practical outworking. Publication came in the form of a book that included the papers presented (and revised by their authors) in the context of 26 contributions to the concept of Environmental Stewardship, from the past and present, each in its own chapter, as assembled and edited by R. J. Berry. This collection of papers was published as a book, *Environmental Stewardship: Critical Perspectives—Past and Present* (New York & London: T & T Clark International, 2006, 348 pp). In his Preface to this volume, Prof. Berry writes, “Four of the papers in this volume (those by Attfield, DeWitt, Lovelock and Rae) were originally prepared for a Consultation in September 2000 on ‘Environmental Stewardship’ organized by the John Ray Initiative and Canon Barry Thompson of St. George’s Chapel and held at St. George’s House, Windsor Castle. The authors have revised them and they are published here alongside some of the classical statements about stewardship, plus a number of contributions written especially for this collection.”

The Windsor Consultation was administered by Sir John Houghton, the leading evangelical scientist in global change, and Prof. Sam Berry, the evangelical geneticist from the University College London.

The conclusion of the conference was that stewardship was the best concept for the “urgent practical matter” of establishing a proper relationship between humanity and its changing environment.”

As an invited speaker I was one who clearly gained the most from the consultation. My paper, “Stewardship: Responding Dynamically to the Consequences of Human Action in the World”, benefitted in many ways from the Windsor Consultation: first by the initial invitation and my being able to respond to the purposes of the consultation as given by John Houghton; second by the presentation itself as followed by its discussion by the participants; third by hearing and discussing the content of James Lovelock’s presentation; fourth by having to prepare the final Saturday morning presentation; and fifth by my being able to use all of this to prepare my final draft. Particularly important for me was Lovelock’s criticism of stewardship as a static concept, which he did in his speaking at Windsor. It was in response to this that stewardship, in my paper, took on a much more dynamic character.

The abstract of my paper is this:

“Stewardship is environmentally responsible behavior that involves an interactive relationship of human beings with their dynamic environment. Stewardship integrates science, ethics, and praxis; recognizes a dynamic and changing Earth, maintains biospheric systems that are working well; works to restore degraded systems to previous levels of performance; compensates for altered systems and system behavior to restore sustainability; tests the responses of systems by experiment and praxis, applies the results in the direction of system sustainability, and learns from others’ experiential behavior. Overall, stewardship shapes and reshapes human behavior in the direction of maintaining individual, community, and biospheric sustainability. It is practiced in behalf of future generations, in behalf of the biosphere and its component systems, in behalf of the processes and persons that sustain the biosphere, and in behalf of their Creator.”

The following is my Windsor paper on Stewardship, as published. It is followed by an abridged copy of a subsequent paper, “Biogeographic and Trophic Restructuring of the Biosphere: The State of the Earth Under Human Domination” published in the *Christian Scholar’s Review* 32:347-364.

**STEWARDSHIP: RESPONDING DYNAMICALLY
TO THE CONSEQUENCES OF HUMAN ACTION IN THE WORLD¹
(The Windsor Paper)**

Calvin B. DeWitt

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The interwoven living fabric that envelops our planet—the Biosphere—is the life-giving and life-sustaining system upon which all living things depend. It is the manifest integration of interacting biotic and abiotic elements, structured and ordered in ways that maintain the conditions for its own systemic sustainability and for the ongoing lineages of its prolific and highly textured abundant life. Human beings, along with all other living creatures, are wholly dependent upon this system for their biological existence and support. Yet human beings, even as they know their absolute dependence on the biosphere for their lives and livelihoods, are degrading and threatening its life-support processes, threatening not only the earth but also themselves.

How can we address this problem in our time? Do we have the means available to help us deal with it effectively and successfully? More specifically, can the stewardship model that has been practiced from antiquity up to the industrial revolution be re-instated, refurbished, and returned to effective service? Can it be made sufficiently robust for a highly dynamic earth at a time when human beings have become a major biological and geological force?

This paper addresses these questions and the necessity for right living on earth.

Stewardship from antiquity to the present

From antiquity to the present there is a continuing stream of writing that documents the dynamic interaction between people and the earth directed toward applying lessons learned from Creation toward (1) improving the earth for human use and habitation and (2) correcting adverse environmental consequences of human actions in the world. In his definitive treatise, *Nature and Culture in Western*

¹ This paper originates from the Consultation in September 2000 on ‘Environmental Stewardship’ at Windsor Castle and was published in *Environmental Stewardship: Critical Perspectives—Past and Present*, edited by R. J. Berry (New York & London: T & T Clark International, 2006, pp. 145-158).

² The Editor’s Preface of the volume in which this paper first appears begins (p. xi) as follows: “Four of the papers in this volume (those by Attfield, DeWitt, Lovelock and Rae) were originally prepared for a Consultation in September 2000 on ‘Environmental Stewardship’ organized by the John Ray Initiative and Canon Barry Thompson of St. George’s Chapel and held at St. George’s House, Windsor Castle. The authors have revised them and they are published here alongside some of the classical statements about stewardship, plus a number of contributions written especially for this collection.”

Thought from Ancient Times to the End of the Eighteenth Century (1967) Berkeley professor Clarence Glacken describes how ancient peoples observed the ordered cosmos and, in their desire to respect and emulate this order in their lives and landscapes, correspondingly ordered the land for human habitation. He reports that ‘the writers of the Roman period, like Varro, Columella, and Pliny, were deeply interested in the improvement of soils, methods of plowing, irrigation, removal of stones, clearing away of thickets, winning of new lands for cultivation, manuring, and insect control...’ (Glacken 1967; 137) He shows how fusing these classical ideas with their later expression in Christian theology and the writings of the early Church Fathers ‘produced concepts of the earth as a habitable planet’—concepts that served well into the nineteenth century. However, the classical and theological underpinnings of stewardship became threatened as ‘unmistakable evidences that undesirable changes in nature were made by man began to accumulate in great volume’ and as these reached dramatic proportions in the eighteenth and nineteenth centuries. ‘For if man cleared forests too rapidly, if he relentlessly killed off wildlife, if torrents and soil erosion followed his clearings, it seems as if the lord of creation was failing in his appointed task, that he was going a way of his own, capriciously and selfishly defiant of the will of God and of Nature’s plan.’ The philosophical and theological underpinnings of stewardship—a synthesis of classical thought, Christian theology, science, and the practice of stewardship as ‘one of the key ideas in the religious and philosophical thought of Western civilization regarding man’s place in nature’—were seriously shaken.

William Blake observed and addressed this degradation in the early nineteenth century. Sometime between 1808 and 1818 he described this transition from harmony to disharmony using the image of two wheels: a larger wheel representing Creation’s economy and a smaller wheel representing the human economy. When the human economy operates *within* the greater economy of Creation, the wheels move harmoniously, in the same direction. However, when the human economy operates *outside of* the greater economy of Creation, disharmony results from one grinding against the other as they move in opposite directions (Fig. 1).

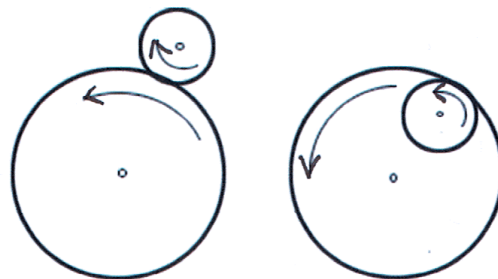


Fig. 1. Visual representation of William Blake’s image of two wheels. The left illustration shows the human economy (the smaller wheel) operating outside of Creation’s economy (the larger wheel) and the right illustration shows the human economy operating within the larger economy of Creation.

Blake writes:

I turn my eyes to the schools and universities of Europe.
 And there behold the Loom of Locke, whose Woof rages dire,
 Wash'd by the Water-wheels of Newton: black the cloth
 In heavy wreaths folds over every nation: cruel works
 Of many Wheels I view, wheel without wheel, with cogs tyrannic
 Moving by compulsion each other, not as those in Eden, which,
 Wheel within wheel, in freedom revolve in harmony and peace.

ith the industrial revolution, the human economy seemingly had escaped from Creation's economy and ran contrary to it. Conversely, Creation—once the model of order and harmony—was transformed into a bundle of 'rude resources' and 'crude resources' stored in a mechanical earth awaiting refinement. The new economy, articulated by John Locke, Adam Smith and others, became the new model for ordering society and God's Creation. Creation's status was transformed from exemplary teacher and book of learning to a vast store of natural and human resources waiting to be extracted. The great variety, texture, and abundance of Creation's creatures were reduced conceptually into land, labour, and capital. People were transformed from Creation-stewards to human resources; human beings as images of God (*imago Dei*) were re-envisioned as *consumers*, *producers*, and *taxpayers*. And *Homo sapiens*—the *Homo* with wisdom—was reconceptualized as *Homo economicus*.

No longer was the former view given credence. No longer would people acknowledge and respect, with the distinguished Swedish taxonomist, Carolus Linnaeus, that we operate within the 'Oeconomy of nature', we understand as: the all-wise disposition of the Creator in relation to natural things, by which they are fitted to produce general ends, and reciprocal uses'.

This was our perspective on the world in 1749, and according to environmental historian Donald Worster, at the conclusion of the seventeenth century the word 'oeconomy' was often applied to divine government of Creation: 'God's economy was His extraordinary talent for matching means to ends, for so managing the cosmos that each constituent part performed its work with stunning efficiency'. (Worster, 1979: 37).

While the Third Edition of *Webster's Dictionary* still defines 'economy' as 'God's plan or system for the government of the world', this meaning has largely been supplanted by its more recent definitions: 'the structure of economic life in a country or area : an economic system' and 'a particular type of economic system or stage of economic development'. Over the past two centuries there has been a conceptual transfer of the little wheel of Figure 1 from its position *within* Creation's economy to a position *without* Creation's economy.

With this conceptual relocation, stewardship—particularly in its corrective and directing role in governing human action in Creation—was made obsolete. Stewardship evaporated in the heat of the industrial revolution.

Developing the concept of stewardship for our time

A worldview that perceives human life and endeavour within the wide embrace of Creation's economy is a necessary component of every successful culture. If any culture or civilization is to survive, it must assess the effects of human actions on its biosphere—not just a much-reduced human economy that has been conceptually excised from the biospheric economy. If it fails in this assessment or in its response to its assessment, it collapses. What UCLA geographer and biologist, Jared Diamond, describes for the collapse of Easter Islanders can become a metaphor for our earth. 'When the Easter Islanders got into difficulties, there was nowhere to which they could flee, nor to which they could turn for help; nor shall we modern Earthlings have recourse elsewhere if our troubles increase. Those are the reasons why people see the collapse of Easter Island society as a metaphor... for what may lie ahead of us in our own future' (Diamond 2005: 119). That is the problem we now confront.

In our day, when Creation largely remains transformed conceptually from teacher to resourceful earth, we are becoming reluctantly aware of large-scale and pervasive alteration and degradation of the

biosphere and its life-sustaining processes. Our response has ranged from acceptance and concern to denial of both empirical data and the increasingly reliable biospheric, atmospheric, and climate models that became available toward the end of the twentieth century. The reality of biospheric transformation, of biogeographic restructuring of terrestrial ecosystems, and of the trophic restructuring and microbialization of the oceans is beginning to register, not only in our models but also in our experience. The time has come to take appropriate action. To take action that is appropriately sufficient and robust to engage the immensity of our problem, we need to look at how people have related to the earth.

From personal experience and from history, we know that we human beings continuously engage in an interactive process with the world around us. We observe the world, we work and act in the world and act upon the world, we see the consequences of our actions, and we respond in various ways to the consequences of these actions. Because we have vital interests in sustaining ourselves, we often respond in ways that make positive or at least benign contributions to our own sustainability. At a very local scale we often correct actions that have degraded our lawns and gardens so that they might persist and flourish. At the community level we might interact with fellow citizens to shape and reshape our behavior in the direction of maintaining and improving individual and community health. At the global level we might actions that counter unanticipated detrimental effects of human actions on the biosphere. Our responsive and corrective actions may be done as matters of immediate self-interest, or in behalf of the garden, community, biosphere or God. They may range from selfish to altruistic. They may also be extensions of self-interest extended to our children and grandchildren. In human responsiveness to human actions in the world there is concern for ‘right living’—living that sustains our own persons, our gardens, our community, the biosphere and much more. And since such right living, if practised only by a few, is often ineffective on family, community and global scales, it is also accompanied by a commitment to spread right living among members of family, community, and around the world.

The relationship we have with our world therefore is necessarily an interactive and dynamic one, with this being true for every human being. Every person on earth derives service from the world, every person does things that have consequences for the world, and every person relates to the consequences of their and others’ behaviour with various degrees of action and inaction. The interactive relationship every person has with the world has its effects, large and small, with some of these relationships doing more than others to sustain or degrade things. The collective results of all of these human actions join with changes of day and night, the seasons, currents of wind and water, and geological developments to guarantee a dynamic world. The dynamic world in turn produces dynamic human beings and a dynamic human society. What makes for stewardship and right living, therefore, is also necessarily dynamic.

What all of this means is that what is appropriate for maintaining individuals, communities, and things such as the biosphere, is not a constant. Instead it necessarily is every changing, ever responding to new and changing environments and to our continuously developing knowledge and understanding of these changing environments. This means, for example, that cutting a tree when forests are abundant might make a positive contribution to human comfort and security but doing so when trees have been made scarce, might make a negative contribution to local or regional microclimate and climate. In this example, people might come to learn to provide for natural forest regeneration or engage in tree-planting. Similarly, growth in human numbers may make positive contributions when people are rare and land is abundant but may bring degradation when population densities exceed the capacity of environments to sustain them. Human beings and cultures, therefore, find that behaviours and practices continued from the past into the present—while once appropriate and necessary—no longer are conducive to sustainable life and sustainable environment. This in turn requires changes in human actions in the world—not just any changes, but changes of the right kind. What makes for right living, therefore, is dynamic.

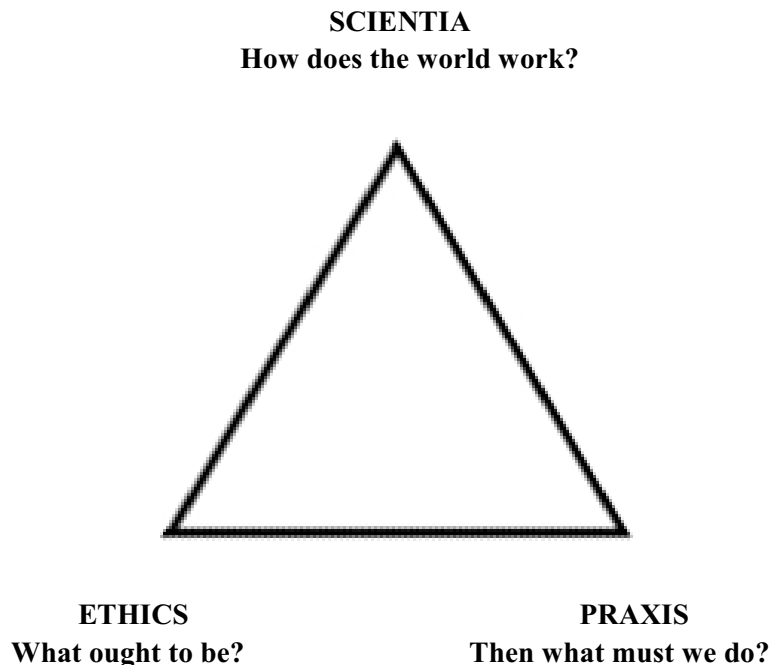
The dynamic nature of human relationship to the world means that individuals and communities must continually or periodically review and re-evaluate human action in the world for the purpose of correcting actions that have ceased from being appropriate and implementing refreshed or new actions that stay the course toward sustainability. Their stewardship must be highly interactive and dynamic.

The essence of stewardship

Successful cultures and civilizations must shape and reshape human behavior in the direction of maintaining individual, community, and environmental sustainability. This has always been necessary, whether or not they sought to improve their human lives and habitations or more simply sought to engage in corrective actions directed toward sustainability. They had to understand their world and its workings by direct experience and accumulated knowledge (scientia), had to gain from their experience and culture an understanding of what constituted right living in the world (ethics), and had to put an interactive and coherent understanding of the world, and how rightly to live, into practice (praxis). Their behaviour had to flow from the interactive and coherent engagement of scientia, ethics, and praxis, whether by authority and striving of the leadership or by individuals and communities learning to live with the way things are ordered in the natural world. Such striving for accord with the biosphere and the biospheric economy shaped and reshaped their behaviour in the direction of maintaining individual, community and biospheric sustainability. Such interactive and coherent engagement leads to respect for the worth of a world in providing the conditions and processes whereby cultures and the full array of life on earth survive and flourish. This respect for the service of the biosphere to all life brings a human response that reciprocates with human actions directed toward assuring its continued service. In a dynamic world these actions necessarily affect and respond to the entire biosphere. The result is reciprocating service—the biosphere to its component people and cultures, and people and cultures to the biosphere, all in accord with the way things are ordered in a coherent biosphere and universe. This is the essence of stewardship. *Stewardship dynamically shapes and reshapes human behaviour in the direction of maintaining individual, community, and biospheric sustainability in accord with the way the biosphere works.*

Framework for stewardship: science, ethics, and praxis

The interactive engagement of scientia, ethics, and praxis that is basic for shaping and reshaping human behavior in the direction of maintaining individual, community, and environmental sustainability can be depicted thus:



The questions at each corner of this triad framework must be addressed interactively and coherently, directed at understanding what sustains a system, what degrades a system and what restores a system, and from this comes a growing understanding of what ought to be, and deriving from this a dynamic understanding of what ought to be done. These questions are identified with the words *scientia*, *ethics*, and *praxis*.

Scientia. Knowledge and understanding of how the world works, from antiquity to the present, require a kind of ‘reading’ of the ‘text’ of the biosphere, or reading and reciting texts that are written or spoken about the biosphere. *Scientia* includes what we call *natural science* but goes beyond this to include what we learn in social sciences and humanities, and beyond this again to whatever other things human beings learn from living in the biosphere. *Scientia* is the body of knowledge whose elements we strive to make *coherent* within this body and strive to make *coherent* with the ways things are in the operations of the biosphere.

Ethics. Knowledge and understanding of what ought to be with respect to human actions in the biosphere requires reading of the ‘text’ of the biosphere together, and coherently with the written and oral texts transferred to us as the long-standing ethical systems that have stood the test of history. From this we may come to realize, for example, that human activity that poisons food supplies ought not to be. So too we may come to realize that human actions that render homes uninhabitable or destroy the regenerative capacity of forests ought not to be. The culture that incorporates into itself a system of beliefs about what ought to be and what ought not to be—its *ethos*—develops a corresponding body of ethical knowledge—its *ethic*. This ethical knowledge is passed from generation to generation through oral traditions and written texts and is the gift derived from long-standing beholders and intentional and unintentional experimenters and participants in stewardship. The body of this knowledge is *ethics*.

Praxis. The actions of human beings in the world, or *practice*, derive from a body of knowledge of how things can be accomplished and are being accomplished in the world. *Praxis* incorporates both this practice and the body of practical knowledge and understanding upon which it depends. *Praxis* is informed by tradition, *scientia*, and *ethics*. In turn, *praxis* informs science on what more we need to know about the world, and *ethics* on what more we need to consider on what ought to be. Stewardship does not allow *scientia*, *ethics* or *praxis* to be considered individually, but requires that all three interact, each informing the others. For example, by-passing *ethics* to move quickly from scientific knowledge of rivers and electrical power generation to building hydroelectric dams may severely reduce soil fertility due to exclusion of riverine sedimentary deposits from river flood plains. By-passing *scientia* to move directly from ethical concerns for inadequate water supplies for nomads to the drilling of tube wells may result in converting nomadic practices into sedentary ones, thereby resulting in depletion of grazing resources and firewood supplies for large distances from the well head.

The contribution of two books theology

Before the advent of modern science people and cultures had developed ways of knowing and understanding the world. The principal way of knowing and understanding in the Western world was through use of the metaphor of Creation as a book—the book of nature. ‘By the Middle Ages we find that the book of nature has become adopted universally as the image through which the environment is to be understood’ (Mills, 1982: 239).

The metaphor of Creation as a book whose author is the Creator had significant power and consequences for the practice of stewardship. This was the case not only for its eliciting the belief in the coherence of Creation, but also its coherence with God’s other book, the Bible. The authority of the two books and their internal and inter-related coherence provided the basis for living rightly on earth. Right living was enabled through a coherent understanding of these two books read together and interactively thereby providing the foundation for coherent interacting *scientia*, *ethics*, and *praxis*. This book metaphor is

expressed across Christendom through the ages with a particularly descriptive one being given in the Confession of Faith of 1561 from the Low Countries on the European continent:

We know him by two means:

First, by the creation, preservation, and government of the universe, since that universe is before our eyes like a beautiful book in which all creatures, great and small, are as letters to make us ponder the invisible things of God: his eternal power and his divinity, as the apostle Paul says in Romans 1:20. All these things are enough to convince men and leave them without excuse.

Second, he makes himself known to us more openly by his holy and divine Word, as much as we need in this life, for his glory and for the salvation of his own.

In Christendom, stewardship is informed and shaped by a ‘two books theology.’ This theology recognizes God as the author of both books, the book of Creation and the book of the Scriptures. This contributes to a robust stewardship derived from reading the text of Creation alongside of the text of the Bible and applying this to right living.

Both books are authoritative, and, if their texts are to be preserved, are read non-consumptively. Tearing out pages or degrading the text of either is unthinkable; their texts must be preserved on the printed page and on the landscape. They are read together and interactively and they have concordance by virtue of their having the same author who is characterized by coherence, consistency, and rightness.

This is the rich base from which the stewardship of Creation has been based. The two-books theology of this rich tradition is a gift of the Judeo-Christian heritage to all cultures and civilizations.

Reading the books of nature and of the book of scripture coherently

Does one necessarily have to adopt the kind of description of the two books as given in the Confession of Faith or similar description! Philosopher of science, Peter Kosso, believes not. In his textbook, *Reading the Book of Nature: An Introduction to the Philosophy of Science*, he writes, ‘The hermeneutic method of interpretation [of a book] is very similar to the scientific method of understanding the world...’ (Kosso 1992: 150) and he builds a strong case for building a coherent understanding of the world by reading it as a text. He shows how, in translating a text, one must first speculate on the meanings of its letters, words and sentences. From first speculations come hypotheses about the message of the text, and these are tested against other texts in the book. ‘The process of translation advances by a back-and-forth exchange of information between the developing understanding of the plot and the translation of individual passages. The global understanding, the message of the whole work, guides the local understanding of the parts’ (Kosso, 1992: 150).

Surprisingly, however—at least it would be for a mediaeval Christian—he writes that ‘there is no hint that nature must have an author as does a text’. Which means, of course, that for Kosso and perhaps other secular students of the natural world, there is no need to believe in God or a Creator. This conclusion is helpful for building a robust stewardship for our time because it allows for reading Creation as a book in a secular manner, without having to acknowledge an author. People of faith, on the other hand, can read this book, concluding with William J. Mills that ‘Viewing the earth as a book entails certain consequences’ one of which is that ‘A book must have an author’ and that therefore it ‘is necessarily to view it theocentrically’ (Mills, 1982: 239).

From Kosso we discover that the reading of a book and reading the book of Creation is constrained by the principle of coherence. ‘The passages must be consistent and should hold together in a cogent message, at least in sizable sections of the text. As the reading continues, new passages are encountered and must be accommodated within the network of beliefs about the book and its message. Each new passage is like a new observation, of which the reader must make sense and which must be fit coherently within the theoretical system’ (Kosso, 1992: 151).

Of particular relevance and importance here is that the reading of the book of scripture—the Bible—is also constrained by the principle of coherence. One of the creeds of Christendom, the Westminster Confession of Faith, presents the widely accepted principle across Christendom in 1646: ‘The infallible rule of interpretation of Scripture, is the Scripture itself; and therefore, when there is a question about the true and full sense of any scripture (which is not manifold, but one), it may be searched and known by other places that speak more clearly.’

Both books—the book of Creation and the book of the Bible—share the same author and must be read together and interactively, with this reading constrained by the principle of coherence. While this is implicit by both books having the same author, making this explicit provides a remarkably powerful basis for a robust stewardship.

Context for stewardship in our day

Our civilization is coming out from a lapse or diminution of some two centuries of neglect of the stewardship tradition. This long lapse means that we cannot simply pick up the tradition where we left it at the beginning of the industrial revolution and put it into practice. Instead we need to size up where we are in the stream of time and identify the major happenings in our world which will help to inform and shape our understanding and substance of stewardship for our time.

Among the most significant developments during these past two hundred years have been those of (a) understanding the biosphere, (b) understanding human impacts on the earth, and (c) understanding worldwide transitions in human communities.

Understanding the biosphere

Developments here include (1) our becoming able to view our planet from outer space, with the ability to measure and model major global processes; (2) our gaining knowledge and understanding of the biosphere as an integrated complex life-support system; (3) the shift from conceiving our planet as a relatively fixed and static system to a remarkably vibrant and dynamic biophysical system we call the biosphere; (4) discovery of the remarkably high degree of fitness of the biosphere for sustaining life; (5) discovery of the intimate relationship and total biophysical dependency of human beings and other living things on the operation and health of the biosphere; and (6) coming to know the variety, size, beliefs, and extent of the world’s major religions.

This understanding must inform our stewardship by compelling us to read the text of Creation, to read the book of nature as a coherent text in order to gain a proper understanding of the biosphere and our biotic and economic place in it.

Understanding human impacts on the earth

Developments here include (1) realization that the human species has become a major geological force on earth, including its acquired capacity to destroy its own species; (2) the human capacity to develop and deploy weapons of mass destruction, with a capacity to destroy the biosphere; and (3) discovery of the universality of human arrogance, ignorance, greed, and aggression that form much of the root of social and biospheric degradation.

This understanding must inform our stewardship by compelling us to read the religious and ethical books we have available to us—like the Bible—whose text can be and are read as internally coherent and simultaneously coherent with the book of nature in order to gain a coherent understanding of the biosphere and our ethical place in it.

Understanding worldwide transitions in human communities

Developments here include (1) a misplaced and lessened economy; (2) fragmentation of knowledge about ourselves and the world; (3) institution of global transport and communications; and (4) creation of the conditions for global distribution of pollution and disease.

This understanding informs our stewardship by compelling us to evaluate the consequences for us and Creation's economy of simultaneous globalization, fragmentation, and breaking barriers to the flows of information, pollution, and disease.

Elements of a refurbished stewardship

Core elements of a refurbished stewardship

A refurbished and robust stewardship regains our place in Creation's economy; re-connects science, ethics, and praxis; re-equips stewardship with dynamic responsiveness for a dynamic world; re-forms human incentives toward the integrity of community and away from arrogance, ignorance, greed, and aggression; reaffirms and expresses in words and actions the passion for right living; re-educates people and communities for the spreading of right living; restores and re-creates ecosystems in accord with Creation's economy; reshapes human behavior in the direction of biospheric sustainability; and recognizes that stewardship is accomplished in behalf of the biosphere and its component systems, in behalf of the processes and persons that sustain the biosphere, and in behalf of its Creator.

The many ways to envision stewardship

There are many other ways to envision stewardship for our day, and any one of these can be added to stewardship's core of shaping and reshaping human behaviour toward sustainability of ourselves, our communities, and the biosphere. It can be envisioned as a relationship that responds to needs of the system with a deep interest and compassion. It can incorporate trust and oversight of people and processes that sustain and restore a community or ecosystem. It can be expressed as art, music, and literature concordant with Creation and yet developing value that was not there previously. It can include guarding, keeping and defending to prevent damage, degradation or destruction. It can be expressed as an alternative to being motivated by arrogance, ignorance, greed, and aggression. It can be expressed as giving to a future generation compensation for gifts received from earlier generations.

Stewardship exemplifies 'true religion'

And in religious terms, stewardship can exemplify what some would call true religion:

Religion is the passion or desire both to live right and to spread right living as desires conceived as responses to some sort of cosmic demand made to us by the way things are, by the nature of Nature, or by God who orders Creation and holds all things together with integrity (Wayne Booth's definition, as modified in DeWitt, 2002).

What a refurbished stewardship does in our day

Stewardship dynamically shapes and reshapes human behavior in the direction of maintaining individual, community, and biospheric sustainability in accord with the way the biosphere works.

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**BIOGEOGRAPHIC AND TROPHIC RESTRUCTURING OF THE BIOSPHERE:
THE STATE OF THE EARTH UNDER HUMAN DOMINATION**

(Abridged Copy)

Calvin B. DeWitt

Earth is enveloped by a living fabric of creatures. Their spatial and functional interweavings with each other and their physical environments constitute the remarkable system we call the biosphere. The biosphere is structured dynamically from microscopic through macroscopic levels by inseparable biogeographic spatial relations and trophic transfers of matter and energy. Its organisms produce and consume, multiply and diminish, develop and decompose. Each and every of its species is characterized by particular niches (roles) and all are engaged in fluxes and flows of matter, energy, and information, energized mainly by solar income. Production of photosynthate by green plants, augmented with a minor contribution of chemosynthate by organisms in deep ocean vents, energizes life at all trophic levels, through which the integrity of the biosphere is maintained.

Our species, in contrast with every other, affects these biospheric dynamics on a grand and pervasive scale, and it is this that brings us from time to time to assess our impact on the Earth. In our day, we find, remarkably, that we have become a principal geological force. We find ourselves to have significantly restructured the biosphere both biogeographically and trophically. And unlike the assessment a half-century ago that examined our role,³ today's assessment recognizes our domination. During the past half-century Earth has come under human domination and this has propelled us into a new role: stewards of the biosphere.

In a NOVA television program in 1985, a man of the Great Plains was asked why he farmed only 700 acres of land, unlike his neighbors whose farms were in the thousands of acres. He replied, "Seven hundred acres is all that one farmer can care for." He had resisted the dictum, "Get bigger or get out." His neighbors had not. And only he could maintain his proud status as responsible steward.⁴

This assessment finds that we have become like the farmer's neighbors, but on a global scale. We have exceeded our capacity to be responsible stewards and in our over-reach, we have brought to it destruction and degradation as never before, on a grand scale. No doubt, some will take this fact as reason to forsake their stewardship, while anticipating the end of the world. Others will take it as license for grasping even greater domination. But we will have to discipline ourselves in another direction if we are to restore the freedom we have lost through the domination we have imposed. Somehow, we will have to get back, metaphorically, to "700 acres."

This assessment comes, then, as we find the whole Earth under human domination. We are the first to see our planet thus and it is dawning on us that this necessarily makes us its stewards..

[This paper has been abridged by removing its major mid-section.]

³ William L. Thomas Jr., ed., *Man's Role in Changing The Face Of The Earth* (Chicago: University of Chicago Press, 1956).

⁴ NOVA, *Seeds for Tomorrow* (Northbrook, Illinois: Coronet Film and Video, 1985). Videotape.

The Stewardship Consequences of Our Domination of the Biosphere

Our assessment of (1) planetary energy exchange, (2) land and soils, (3) forests and habitats, and (4) biodiversity each concluded with stewardship consequences. To summarize: Human stewardship extends to all systems we have chosen to affect and the pervasive human domination of the biosphere that now includes the atmosphere, Earth's soils and land, the forests of the biosphere, and biodiversity and trophic relations, has brought us a new status. In short, for the first time in history, we have become stewards of the biosphere.

Our emerging role as stewards of the biosphere has not gone unnoticed. A key paper in *BioScience* in 2002 recognized that "The global extent of the human footprint suggests that humans are stewards of nature, whether we like it or not."⁵ And a major article in *Science* magazine in 1997, concluded: "...humanity's dominance of Earth means that we cannot escape responsibility for managing the planet."⁶ In short, we are left with no recourse but to act on the threatening consequences of our pervasive impacts and disruptions.

We know, however, the difficulty and have counted the cost of managing but a few small space stations. And we also know of our failure to sustain Biosphere II. However, even if we had the knowledge and capacity and resolve to manage the planet, we might well choose to do otherwise. The reasons are (1) that our knowledge is now sufficient to inform us that the biosphere, if properly and respectfully treated, will take care of itself, including ourselves and (2) that the immense cost of even trying to manage the planet would cost us the freedom we enjoy from its self-regulation. The dictum of physiologist, Claude Bernard, derived from his extensive research into physiological control and regulatory systems also applies to the biosphere: "La fixité de la milieu intérieur est la condition de la vie libre."⁷ Respecting Bernard's principle applied to the biosphere, we would need to respect and preserve the systems that sustain us and all life. And for whatever aspects of biospheric operations we have adversely affected, we would need to restore the conditions that allow them to work. By so doing, we would be applying the first principal of biospheric stewardship: *The better part of the steward's art is to give back to the biosphere what it already had been doing quite well.*⁸

In seeking to proceed in this time of domination we will need to transform our management into stewardship. And in our stewardship we must incorporate (1) preservation of biospheric systems that are working quite well, (2) application of the physician's art and science at

⁵ Eric A. Sanderson, et al., "The Human Footprint and the Last of the Wild," *BioScience* 52, no. 10 (2002): 891-904.

⁶ P.M. Vitousek, et al., "Human Domination of Earth's Ecosystems," *Science* 277 (1997): 494-499.

⁷ "Regulation of the internal environment is the necessary condition for a free life." This concept of regulation was developed by Claude Bernard as a central tenet of physiology and is central to his *Leçons sur les Phénomènes de la Vie Communs aux Animaux et aux Végétaux* (Paris: Baillière, 1878-1879). It was further developed by Walter B. Cannon, "Organization for Physiological Homeostasis," *Physiological Reviews* 9 (1929): 399-431.

⁸ A restatement of the principle from Calvin B. DeWitt, "Let It Be: A Wetland Scientist and Restorationist Reflects on the Value of Waiting," *Restoration and Management Notes* 7, no. 2 (1989): 80-81.

setting the conditions for restoration and healing of whatever we have abused and degraded, and (3) making peace with creation and its creatures in deliberate and determined reconciliation.

In working to achieve responsible stewardship, every person needs to identify responsible stewardship paradigms (examples) already in place, and amplify and replicate these across every field of work and endeavor; we must create and invent new and effective stewardship responses to the conditions and problems we have created at all levels of biospheric operations. In pursuing this work of biospheric stewardship, ecologists and environmental scientists must continue their progression in research from reservation ecology and restoration ecology on to reconciliation ecology.⁹ Scholars and practitioners must make significant contributions to biospheric stewardship by publishing not only in journals and web pages, but also in lives and landscapes. And, readers of journals such as this need to conduct periodic self examinations in the context of our knowledge of ourselves and the biosphere, taking perhaps as a model the resolve of the founders of the journal, *Conservation Biology*, whose founders

...knew we could no longer simply follow the traditional academic model—placing bricks in the wall of knowledge and claiming them to be available to whomever wants to use them—and still have much hope of altering the course of world events. They saw that changes in the way the world operates would not come about through passive building of that wall... Like it or not, conservation science operates in a world increasingly defined by dishonesty, blatant self-interest, blasé acceptance of the loss of nature, increased tolerance for ugliness, global corporate control, growing fascination with an artificial cyberworld, and anti-intellectualism. To shy away from such realities and pretend they do not exist would consign us to irrelevancy. We must face these issues head on and begin new—and perhaps uncomfortable—conversations if this field is to be more than an odd historical curiosity to be cast upon the rubbish heap of indifference in future decades.¹⁰

Many professions, trades, businesses, governments, denominations, congregations, and individuals already are establishing new priorities for addressing the great issues we have brought into play through our domination of Earth. Our challenge, within the academy and the wider world, is dealing with ourselves, professionally and personally, corporately and individually. Ultimately we all must face the question in every aspect of our life and work, Will we “bring *good news* to every creature?”¹¹

Citation: DeWitt, C. B. 2003. Biogeographic and Trophic Restructuring of the Biosphere: The State of the Earth Under Human Domination. *Christian Scholar's Review* 32:347-364.

⁹ Michael L. Rosenzweig, *How the Earth's Species Can Survive in the Midst of Human Enterprise* (New York: Oxford University Press, 2003).

¹⁰ Gary K. Meffe, “The Context of Conservation Biology,” *Conservation Biology* 15, no. 4 (2001): 815-816.

¹¹ Cf. Mark 16:15.