GAIA'S
HIDDEN LIFE:

THE UNSEEN INTELLIGENCE
OF NATURE

Compiled by SHIRLEY NICHOLSON & BRENDA ROSEN
Library of Congress Cataloging-in-Publication Data
p. cm.
ISBN 0-8356-9685-6 (pbk.) : $14.00
BL240.2.G35 1992
291.2'12—dc20 92-50143
CIP

987654321 * 92 93 94 95 96 97 98 99

This edition is printed on acid-free paper that meets the American National Standards Institute Z39.48 Standard

Printed in the United States of America by Bookcrafters
Contents

Acknowledgments ix
Contributing Authors xi
Introduction
James Swan 1

Part One: Worldviews of a Living Cosmos

1 The Living Cosmos
   Shirley Nicholson 11

2 The Dance of Life
   Elisabet Sahtouris 16

3 The New Story: A Christian Mystical View of Nature
   Sean McDonagh 29

4 1492 and After: Native American and European World Views
   Clara Sue Kidwell 36

5 The Evolution of the Earth and Humanity: A View Based on the Work of Rudolf Steiner
   David Valbracht 44

Part Two: Ecological and Scientific Perspectives

6 What is Gaia?
   James Lovelock 59

7 Wizard of Tuskegee
   Peter Tomkins and Christopher Bird 83

8 Nature as Psyche
   Patrick Milburn 90

9 What is Life?—Toward a New Paradigm
   Pamela Kent Demers 107

Part Three: Traditional Views of Nature as Alive

10 Returning to Our Native Place
   Thomas Berry 127
Acknowledgments


“The New Story” is reprinted from Call to a New Theology by Sean McDonagh. Reprinted by permission of Marquette University Press.


“The Dance of Life” from Gaia to Chaos by Dr. Elisabet Sahtouris. Reprinted by arrangement with the publisher.

“Of the Elements and Their Inhabitants” from Nature and the Human Spirit, by Manly P. Hall. Copyrighted by Manly P. Hall. Reprinted by permission of Findhorn Press Ltd.

Acknowledgments


"The New Story" is reprinted from To Care for the Earth: A Call to a New Theology by Sean McDonagh. Copyright © 1986 by Sean McDonagh. Reprinted by permission of Bear & Co., Inc., PO Drawer 2860, Santa Fe, NM 87504.

"The Celtic Fairy-Faith" is reprinted from The Fairy-Faith in Celtic Countries by W. Y. Evans-Wentz, © 1966 by University Books, Inc. Published by arrangement with Carol Publishing Group.


"The Dance of Life" from Gaia: The Human Journey from Cosmos to Chaos by Dr. Elisabet Sahtouris. Copyright © 1989 by Dr. Elisabet Sahtouris. Reprinted by permission of Pocket Books, a division of Simon & Schuster, Inc.
al mystics called elementals? e Sidhe are, I think, the nature stics.'

Sidhe.'— have described them seem to be something akin to electrical e the Sidhe seem to be similarly draw their life out of the Soul.

Beings.— of the various Sidhe beings in on several occasions.' en confirmed to me by thir ve visions, who separately at company with our witness the ment. On another occasion, on at, County Sligo, the same Sidhe went witness and a friend with lily of seership, at a time when the little distance apart, and they the being, not knowing that unnecessary. I have talked with d know them so intimately that percipients they fulfil all neces- required by psychologists in acceptable.

14

The World an Organism

CAROLYN MERCHANT

Organic Unity

Organic thought in the Renaissance had its roots in Greek concepts of the cosmos as an intelligent organism, which when revived and modified were assimilated into the consciousness of the fifteenth and sixteenth centuries. Three root traditions became the basis for later syncretic forms of organicism—Platonism, Aristotelianism, and Stoicism. Each of these organic traditions differed in important respects, so that when synthesized with other systems, such as Hermeticism, gnosticism, Neoplatonism, and Christianity, they produced a spectrum of Renaissance organicist philosophies.

Common to all was the premise that all parts of the cosmos were connected and interrelated in a living unity. From the "affinity of nature" resulted the bonding together of all things through mutual attraction or love. All parts of nature were mutually interdependent and each reflected changes in the rest of the cosmos. The common knitting of the world's parts implied not only mutual nourishment and growth but also mutual suffering. "When one part suffers, the rest also suffers with it," wrote Giambattista della Porta (1535-1615). Or as Paracelsus expressed the idea, "If anything suffers from the error of the elements other things grow uncertain too... and the defects and errors of the firmament can be observed by us, no less than the firmament observes our defects."

Astrologer John Dee (1527-1628) presupposed a harmonious universe in which celestial rays from the stars and zodiacal signs interacted with each other to produce different effects in each natural object. The coalescence and unionization of natural forces as they flowed into each body produced a unique effect in that object, dependent on both source and receptor.

The organic unity of the cosmos derived from its conception as a living animal. A vast organism, everywhere quick and vital, its body, soul, and spirit were held tightly together.
Carolyn Merchant

As Della Porta put it, "The whole world is knit and bound within itself; for the world is a living creature, everywhere both male and female, and the parts of it do couple together... by reason of their mutual love." All parts of this world, even the metals, contained life and were nourished by the earth and sun. Bernardino Telesio wrote that

those things which are made in the depths of the earth, or those which derive or grow therefrom: the metals, the broken sulfurous bituminous or nitrogenous rocks; and furthermore those sweet and gentle waters, as well as the plants and animals—if these were not made of earth by the sun, one cannot imagine of what else or by what other agent they could be made.

His follower Campanella affirmed the vitality of the elements and the pervasive life and feeling of the entire cosmos:

Now if animals have, as we all agree, what is called sense or feeling, and if it is true that sense and feeling do not come from nothing, then it seems to me that we must admit that sense and feeling belong to all elements which function as their cause, since it can be shown that what belongs to the effect belongs to the cause. Consider, then, the sky and earth and the whole world as containing animals in the way in which worms are sometimes contained in the human intestines—worms or men; if you please, who ignore the sense and feeling in other things because they consider it irrelevant with respect to their so called knowledge of entities.

As the sixteenth century organic cosmos was transformed into the seventeenth century mechanistic universe, its life and vitality were sacrificed for a world filled with dead and passive matter. By examining variations in Renaissance philosophies of nature we can see the process by which some assumptions were transformed and retained while others were criticized and rejected.

Neoplatonic Natural Magic

Neoplatonic natural magic presupposed a hierarchical cosmic structure and assumed that earthly changes were influenced by the celestial heavens and could be produced artificially by the human manipulation of natural objects in which these influences inhere. It originated as an elite aristocratic form of the magical world view in the Florentine Platonic Academy in the late fifteenth century.

A revival of Neoplatonic philosophies of Hermes Trismegistus to ship of the wealthy Medici family aristocratic status through the commerce of wool and silk goods and mine management. The Florentine Academy was a private community of scholars (such as Pico della Mirandola) who studied Neoplatonic magic postulated extended from the base matter of the universe structure) studies of the changes could be effected by the divine intellect. It accepted the triplicity of cosmic world into body, soul, and mind as a living organism. The divine mind was the seat of the Platonic form of the female soul of the world was evil, and Plato's Timaeus, was the source of the macrocosm. It contained the concept of Ideas. The world's body was its which corporeal objects were germinated images in the world soul to the world spirit. The spiritus mundi influences of superior powers is brought down and joined to terrestrial region. As Agrippa put it in the soul of the world there are ideas in the mind of God, by whi above the stars frame to herself all these some properties. On the properties, all virtues of inferior do depend; so that every specific figure that is suitable to it, from the power of operating, which prop idea, through the seminal forms of

This Neoplatonic conceptual framework was a natural philosophy. As Pierre Gassendi, Della Porta, and Thomas Hobbes arranged the parts of the linking inferiors to superiors: "For I joined to their superiors, that I..."
whole world is knit and bound
a living creature, everywhere
parts of it do couple together...

in the metals, contained life and
\( n \) and sun. Bernardino Telesio

in the depths of the earth, or those
com: the metals, the broken sulfuric,
rocks; and furthermore those sweet
is the plants and animals—if these
he sun, one cannot imagine of what
they could be made.\(^4\)

irmed the vitality of the elements:
ing of the entire cosmos:
all agree, what is called sense or
sense and feeling do not come from
that we must admit that sense and
nts which function as their cause,
what belongs to the effect belongs
the sky and earth and the whole
s in the way in which worms are
human intestines—worms or men,
e sense and feeling in other things
levant with respect to their so called

organic cosmos was transformed
y mechanistic universe, its life
or a world filled with dead and
ing variations in Renaissance
see the process by which some
d and retained while others were

resupposed a hierarchical cosmic
earthly changes were influenced
could be produced artificially
of natural objects in which these
iated as an elite aristocratic
view in the Florentine Platonic
century.

The World an Organism

A revival of Neoplatonic philosophy and an interest in the
writings of Hermes Trismegistus took place under the sponsor-
ship of the wealthy Medici family, who had obtained an
aristocratic status through the commercial manufacture and
trade of wool and silken goods, banking operations, and
mine management. The Florentine Academy, which they funded,
was a private community of scholars pursuing (outside the
university structure) studies of a hierarchical cosmos in which
changes could be effected by the manipulation of natural
objects. The academy supported Ficino and visiting Neoplatonic
scholars such as Pico della Mirandola.\(^5\)

Neoplatonic magic postulated a hierarchical universe that
extended from the base matter of the earth upward to the
divine intellect. It accepted the tripartite division of the macro-
cosmic world into body, soul, and spirit, the components of
a living organism. The divine mind beyond the visible cosmos
was the seat of the Platonic forms, the pure Ideas of which
sensible corporeal objects were merely imperfect copies. The
female soul of the world was everywhere present and, as in
Plato’s Timeus, was the source of motion and activity in the
macrocosm. It contained the celestial images of the divine
Ideas. The world’s body was its matter, the elements out of
which corporeal objects were generated. Linking the celestial
images in the world soul to the matter in the body was the
world spirit. The spiritus mundi was the vehicle by which the
influences of superior powers in the celestial realm could
be brought down and joined to the inferior powers in the
terrestrial region. As Agrippa put it,

In the soul of the world there be as many seminal forms as
ideas in the mind of God, by which forms she did in the heavens
above the stars frame to herself shapes also, and stamped upon
all these some properties. On these stars therefore, shapes and
properties, all virtues of inferior species, as also their properties
do depend; so that every species hath its celestial shape, or
figure that is suitable to it, from which also proceeds a wonderful
power of operating, which proper gift it receives from its own
idea, through the seminal forms of the soul of the world.\(^7\)

This Neoplatonic conceptual scheme was common to
natural philosophers such as Ficino, Pico della Mirandola,
Agrippa, Della Porta, and Thomas Vaughan. The hierarchical
arrangement of the parts of the universe was a great chain
linking inferiors to superiors: “For so inferiors are successively
joined to their superiors, that there proceeds an influence
from their head, the first cause, as a certain string stretched out to the lowermost things of all, of which string if one end be touched the whole doth presently shake.  

Della Porta illustrated the role of the golden chain in the operations of the magus who "marries and couples together inferior things" by means of the powers they receive from their superiors:

Seeing then the spirit cometh from God, and from the spirit cometh the soul, and the soul doth animate and quicken all other things in their order... so that the superior power cometh down even from the very first cause to these inferiors, driving her force into them, like as it were a cord platted together and stretched along from heaven to earth, in such sort as if either end of this cord be touched, it will wag the whole; therefore we may rightly call this knitting together of things a chain... wherein he feigneth, that all the gods and goddesses have made a golden chain, which they hanged above in heaven, and it reacheth down in the very earth.  

Thomas Vaughan, a seventeenth-century Neoplatonic alchemist, likewise held that the world’s soul, spirit, and ethereal water were all connected together like the links of a chain. The attraction of the spirit for the soul moved the first link followed by the attraction of the water for the spirit. The soul thus became imprisoned in the liquid crystal of the waters.

In every frame, there are three leading principles. The first is this soul, whereof we have spoken... already. The second is that which we have called the spirit of the world, and this spirit is "the medium whereby the soul is diffused through and moves its body." The third is a certain oleous, ethereal water. This is the menstruum and matrix of the world, for in it all things are framed and preserved.

At the basis of Neoplatonic hierarchical magic, therefore, was a causal chain linking elemental and celestial objects and making it possible for bodies above the terrestrial sphere to affect and alter those on earth.

In the Neoplatonic scheme, the cosmic world soul was the source of life and activity in the natural world. The soul was immanent within nature, vivifying it like a cosmic animal. Matter was distinct from both the world’s soul and its spirit. Agrippa held that the soul was the source of the world’s power, while matter was inactive: "Now seeing the soul is the first thing that is moveable and as they say, is moved of itself; but the body or the matter, is of itself unable and unfit for motion and doth degenerate from the soul."  

Likewise, for Thomas Vaughan, the soul of the world, trapped in freedom. He considered the Aristotelian form too limiting and absurd to be true. Motion was caused by a principle of the world, the anima mundi. But li Vaughan considered matter to be with no motive faculty at all.

Although the ultimate source of the world picture was the anima mundi, earthly objects by the spiritus natural objects were induced through natural magician drew a distinction between the properties of matter, and the stars from the stars and infused into the. These occult virtues were mor virtues because they contained π. The occult properties had the power to make the objects “like and similar” excess of occult virtue in any quality in another, plants or animal could be utilized to produce the occult virtues.

Any animal that is barren causes the animal especially the genus would, promote love, let us see. loving, of which kind are pig wags tails and in these take those vital virtue is most vigorous so like parts... In like manner, for a lion, or a cock, and of the forehead.

An occult property had the potential to be like in another object, but also to be away out of its presence. I think between occult properties could effect cures and produce changes to Della Porta. "Amongst all things, nothing but hath some hidden moreover that by this their cons conjecture, and in trial so it will be used as a fit remedy against the propt
Likewise, for Thomas Vaughan, the principle of motion was the soul of the world, trapped by matter and struggling for freedom. He considered the Aristotelian notion of a substantial form too limiting and absurd to be the source of motive power. Motion was caused by a principle internal to the macrocosmic world, the anima mundi. But like the other Neoplatonists, Vaughan considered matter to be "merely passive and furnished with no motive faculty at all." 

Although the ultimate source of activity in the Neoplatonic world picture was the anima mundi, which was connected to earthly objects by the spiritus mundi, changes in particular natural objects were induced through occult properties. The natural magician drew a distinction between elementary qualities, the properties of matter, and occult properties, those derived from the stars and infused into natural objects by the spiritus. These occult virtues were more powerful than elementary virtues because they contained more form and less materiality. The occult properties had the power to "generate their like," to make the objects "like and suitable to" themselves. Since an excess of occult virtue in any object could generate a like quality in another, plants or animals containing strong virtues could be utilized to produce the desired property. For example,

Any animal that is barren causeth another to be barren, and of the animal especially the generative parts . . . if at any time we would promote love, let us seek some animal which is most loving, of which kind are pigeons, turtles, sparrows, swallows, wagtails and in these take those members or parts in which the vital virtue is most vigorous such as the heart, breast, and also like parts. . . . In like manner, to increase boldness, let us look for a lion, or a cock, and of these let us take the heart, eyes or forehead.

An occult property had the power not only to generate its like in another object, but also to "shun its contrary and drive it away out of its presence." These enmities or antipathies between occult properties could be used by the magus to effect cures and produce changes in natural objects. According to Della Porta, "Amongst all the secrets of nature, there is nothing but hath some hidden and special property; and moreover that by this their consent and disagreement, we may conjecture, and in trial so it will prove, that one of them may be used as a fit remedy against the harms of the other." 

For the Neoplatonists, therefore, the opposites, or sympathies and antipathies, were the properties of natural objects. They
were powers or forces within the material object, but distinct from it, deriving from the world soul in the celestial heavens and ultimately from the ideas in the divine mind. The tripartite distinction between matter, spirit, and soul was the foundation of the Neoplatonic hierarchical structure. Operating within this hierarchy, the magus could draw down the celestial powers to marry inferiors to superiors, and therefore to manipulate nature for individual benefit.

Condemned by the Catholic Church in the sixteenth century as heretical, natural magic was based on assumptions such as the manipulation of nature and the passivity of matter; these assumptions were ultimately assimilated into a mechanical framework founded on technological power over nature for the collective benefit of society. The Renaissance magus as an operator and arranger of natural objects became the basis of a new optimism that nature could be altered for human progress.

In the organic world view, the concept of nature as a living entity had limited the scale of power to individual needs and group benefits such as spiritual fulfillment, healing, the growing of crops, and the manufacture of tools. For the Neoplatonic magician, the upward gnostic ascent aimed at greater intellectual insight and spiritual regeneration. Knowledge and power could be obtained through a union with the understanding and intellect of God: “No one has such powers but he who has cohabited with the elements, vanquished nature, mounted higher than the heavens, elevating himself above the angels to the archetype itself, with whom he then becomes cooperator and can do all things.” But power obtained by such methods was restricted to each individual. It was an experience which could not be shared or transferred except through initiation.

Della Porta portrays the magician as nature’s assistant in the cultivation of crops and breeding of animals, nature being the operator, the magician preparing the way:

Wherefore as many of you as come to behold magick, must be persuaded that the works of magick are nothing else but the works of nature whose dutiful hand-maid magick is... as in husbandry it is nature that brings forth corn and herbs, but it is art that prepares and makes way for them. Hence it was that Aniphon the poet said, that we overcome those things by art wherein nature doth overcome us; and Plotinus calls a magician such a one as works by the help of nature only, and not by the help of art.16

But although the magician is depicted here as nature’s helpmate, the idea of altering and changin to Della Porta’s natural magic. M to the production of new plants, and the changing of metals—how into a vine,” how to generate “peach-apple and a nut-peach,” and of living creatures... of diverse l

He writes,

Art, being as it were, nature’s agent, effecteth greater matters than a magician being furnished with a searching thoroughly into that we accomplish by many secret means work upon nature... and either making things ripe before or after, indeed makes nature to be his instrument.

Although Della Porta considered himself a servant of nature working within periods, aping and emulating its to perfect and hasten them, such simulated into the utilitarian framework for the same oper mechanism, too, were limited by th within them, “commanding nature free of the ethical strictures associ as a living being.

The process of mechanizing the controls over environmental explen part of the organic view that nat responsive to human action. Metamagical tradition the concept of but divested it of life and vital ac externality of motion, and elimina altered the character of cosmology constraints. In the mechanical p of nature ceased to be a matter of i associated with general collab sanctioned the expansion of common it benefited those persons and development, rather than promoti It was intimately connected to
The World an Organism

the idea of altering and changing nature is also important to Della Porta's natural magic. Much of his book is devoted to the production of new plants, the generation of animals, and the changing of metals—how "an oak may be changed into a vine," how to generate "an apple compounded of a peach-apple and a nut-pearch," and how to breed "new kinds of living creatures . . . of diverse beasts, by carnal copulation." He writes,

Art, being as it were, nature's ape, even in her imitation of nature, effecteth greater matters than nature doth. Hence it is that a magician being furnished with art, as it were another nature, searching thoroughly into those works which nature doth accomplish by many secret means and close operations, doth work upon nature . . . and either hastens or hinders her work, making things ripe before or after their natural season, and so indeed makes nature to be his instrument.

Although Della Porta considered himself to be the humble servant of nature working within its seasons and growing periods, aping and emulating its organic processes in order to perfect and hasten them, such manipulations, when assimilated into the utilitarian framework of Francis Bacon, would become instead techniques for control. Mechanism removed the organic substratum and substituted a mechanical framework for the same operations. And although the mechanists, too, were limited by the laws of nature and operated within them, "commanding nature by obeying her," they were free of the ethical strictures associated with the view of nature as a living being.

The process of mechanizing the world picture removed the controls over environmental exploitation that were an inherent part of the organic view that nature was alive, sensitive, and responsive to human action. Mechanism took over from the magical tradition the concept of the manipulation of matter but divested it of life and vital action. The passivity of matter, externality of motion, and elimination of the female world soul altered the character of cosmology and its associated normative constraints. In the mechanical philosophy, the manipulation of nature ceased to be a matter of individual efforts and became associated with general collaborative social interests that sanctioned the expansion of commercial capitalism. Increasingly it benefited those persons and social classes in control of its development, rather than promoting universal progress for all. It was intimately connected to an empirical philosophy of

the material object, but distinct mind, soul in the celestial heavens in the divine mind. The tripartite spirit, and soul was the foundation- nal structure. Operating within could draw down the celestial to superiors, and therefore to al benefit.

Church in the sixteenth century is based on assumptions such as nd the passivity of matter; these assimilated into a mechanical logical power over nature for the Renaissance magus as an other objects became the basis of a ld be altered for human progress. the concept of nature as a living of power to individual needs and al fulfillment, healing the growing re of tools. For the Neoplatonic ascent aimed at greater intel-1 regenration. Knowledge and through a union with the under- d: "No one has such powers but he the elements, vanquished nature, eathens, elevating himself above self, with whom he then becomes hings." But power obtained by d to each individual. It was an be shared or transferred except

magician as nature's assistant in breeding of animals, nature being 'repairing the way:

as come to behold magick, must be magick are nothing else but the work shmaid magick is . . . as in husbandry th corn and herbs, but it is art that or them. Hence it was that Antipho some those things by art wherein nature scalls a magician such a one as works and not by the help of art.16

depicted here as nature's helpmate,
science and a concept of the human being as a designer of experiments who by wrestling secrets from nature gained mastery over its operations.

Naturalism

Whereas natural magic tended to operate within a structure that conserved cosmic order in the form of hierarchy, the second organic variant, naturalism, laid greater stress on a concept of change that challenged the hierarchical structure of both nature and society. Renaissance naturalism, developing from within the Aristotelian framework, exposed it to a radical critique. The ultimate terms of philosophical explanation were reduced to two—the material substratum and the dialectical opposition of contraries. Naturalism differed from Neoplatonism in that the contraries were principles of change rather than properties of matter. The lack of a distinction between the world soul and spirit broke down the Neoplatonic hierarchies, utilizing only one category to account for natural changes.

Naturalism differed from traditional Aristotelianism in that activity was not accounted for through the actualization of the potential by means of the form; instead, the contraries were the agents of change. They were active principles; matter was a passive principle that received specification through the activity of the opposites.

Telesio, in his book De Rerum Natura (On the Nature of Things According to Their Own Proper Principles) (1565), reduced the explanatory entities to two substances or natures, a corporeal material substratum and an incorporeal dialectical activity that produced individuation in matter. Throughout changes in individual objects, the same body and matter remained. Matter was dead and passive, completely uniform throughout and lacking the capacity to act or operate. Its function was to receive and conserve the activity of the incorporeal substance.

The distinctive feature of Telesio's natural philosophy was to define activity as a dialectic, the conflict between contraries. Active agents “perpetually oppose one another; forever disturbing or destroying each other. They do not desire to be together, nor can they remain together in any way.” The primary opposites were hot and cold, and from these followed the operations of the other opposites: density and rarity, darkness and whiteness, lightness and obscurity, mobility and immobility, bringing the “active natures into perpetual conflict.”

The two fundamental active principles are the sun and the earth. The sun is light and motion, the earth is immobility. These principles generated out of the earth and diminished form. In generated penetrations and caused change, they were primary, supreme, self-complete, and active. Each natural organism develops a nature, while its motion benefits the whole.

Telesio's naturalism was an outgrowth of the early ideas of Campanella, the earth, the plants, and the sun the sense and feelings. Plants and from the earth and their activities. The sun was an “active, diffusible. Sense and feelings were characteristic of the sun and the earth and the feel is undetermined.”

Following Telesio, Campanella through the opposition of active and passive, understood as active and passive, gave rise to beings with feelings and actions. All things were produced from the activity of the sun, arising two contraries heat and cold.

Campanella criticized the philosophers Democritus and Leucippus for their mingling of inert, passive, and active substances. He observed, heat and cold were active substances, but were produced insensibly. “Heat is born from those atoms which are hot, cold from those which are obtuse, around ones.”

The basic dynamic of the opposition extended to a general theory of the natural world. It is better to have a general theory of the natural world. It is not important to look at the properties of individual objects, but at the properties of the universe as a whole. Therefore, the basic dynamic of the opposition extended to a general theory of the natural world.
human being as a designer of
secrets from nature gained

t to operate within a structure
in the form of hierarchy, the
alism, laid greater stress on a
angered the hierarchical structure
naissance naturalism, developing
work, exposed it to a radical
of philosophical explanation
rial substratum and the dialectical
ism differed from Neoplatonism
inciples of change rather than
k of a distinction between the
own the Neoplatonic hierarchies,
account for natural changes.

traditional Aristotelianism in
l for through the actualization
he form; instead, the contraries
were active principles; matter
received specification through

n Natura (On the Nature of Things
Principles) (1565), reduced the
stances or natures, a corporeal
incorporeal dialectical activity
in matter. Throughout changes
body and matter remained
completely uniform throughout
operate. Its function was to
incorporeal substance. Telesio’s
natural philosophy was
the conflict between contraries,
pose one another; forever
other. They do not desire to be
in together in any way.” The
cold, and from these followed
opposites: density and rarity,
hiteness and obscurity, mobility
five natures into perpetual conflict.”

The two fundamental active principles, hot and cold, appeared
in corporeal garb as the sun and the earth, sensible manifes-
tations of the opposites. The sun was “supreme heat, whiteness,
light, and motion,” the earth “supreme cold, darkness, and
immobility.” These principles also appeared in all things
generated out of the earth and sun (or sky) in a reduced or
diminished form. In generated objects, the opposites inter-
penetrated and caused change, while in the sun and earth they
were primary, supreme, self-constituted, and independent.
Each natural organism developed in accordance with its own
nature, while its motion benefited and maintained the harmony
of the whole.

Telesio’s naturalism was an important formative influence
on the early ideas of Campanella. Campanella asserted that
the earth, the plants, and the metals were living beings with
sense and feelings. Plants and animals derived their matter
from the earth and their activity and motion from the sun.
The sun was an “active, diffusive, and incorporeal power.”
Sense and feelings were characteristic of active causes. “That
the sun and the earth feel is undeniable,” he asserted.

Following Telesio, Campanella argued that change occurred
through the opposition of active contraries. “Hot and cold, I
say, understood as active and wholly free of atomic passivity,
are not born without active power.” The modes of being were
produced by the opposing actions of these dynamic causes.
All things were produced from the matter of the earth and
the activity of the sun, arising from the opposition of the
two contraries heat and cold.

Campanella criticized the atomic theory of the ancient
philosophers Democritus and Lucretius on the basis that
the mingling of inert, passive, insentient particles could not
give rise to beings with feelings and sensations. For the atomists,
he observed, heat and cold were not active principles within
matter, but were produced instead by mechanical coupling:
“Heat is born from those atoms which are sharper, and cold
from those which are obtuse, while the soul is born of the
round ones.”

The basic dynamic of the opposition of hot and cold was
extended to a general theory of dialectical process in the
philosophy of Giordano Bruno, who synthesized Neoplatonic
and Stoic ideas. From an early Neoplatonist phase, he moved
to the view, in his Expulsion of the Triumphant Beast (1584),
that two universal substances, one corporeal and material,
the other incorporeal and spiritual, explained change. The soul and spirit of the Neoplatonists were fused into a single active substance, a world soul or inner principle of motion, while prime matter was its passive corporeal opposite. Matter was not created ex nihilo, nor could it return to nothingness; it was "ingenerable and incorruptible," "arrangeable and fashionable," and a divine mother of all things. The active substance, or universal spirit, did not mix by composition with matter, but had the power to hold matter intact, keep its parts united, and maintain its composition: "It is exactly like the helmsman on the ship, the father of the family at home, and an artisan who is not eternal but fabricates from within, tempers and preserves the edifice. . . . it winds the beam, weaves the cloth, interweaves the thread, restrains, impairs, gives order to and arranges and distributes the spirits. . . ." On the highest level, matter and spirit achieved an absolute unity as a single universal substance.

Change was the unification and opposition of contraries. An efficient formative principle within the universal spiritual substance acted to unite the contraries and to arrange discordant qualities in harmonies. And then, "necessitated by the principles of dissolution, abandoning its architecture [the efficient and formative principle] causes the ruin of the edifice by dissolving the contrary elements, breaking the union, removing the hypostatic composition."

Bruno's character of Sophia, ancient priestess of gnostic wisdom, puts forth his ideas on the unification and dissolution of contraries in *The Expulsion of the Triumphant Beast*. The transit between states defines the reality in change. One condition has meaning only in terms of its opposite. Pleasure becomes meaningful in terms of past boredom, walking in terms of previous sitting, satiety with respect to hunger: "Association with one food, however pleasing," says Sophia, "is finally the cause of nausea. . . . Motion from one contrary to the other through its intermediate points come[s] to satisfy [us]; and, finally we see such familiarity between one contrary and the other that the one agrees more with the other than like with like." Responding to Sophia, Bruno's Saulino pointed out that it is no small thing to have discovered the principle of the coincidence of contraries and that it is the magician who knows how to look for them. Everything comes "from contraries, through contraries, into contraries, to contraries. And where there is contrariety there is action and reaction, there is motion, there is diversity. terms of activity and process. C through the coming together at The source of activity in nature immanent activity of God within .

Bruno's dialectic stressed the use of opposites, anticipating ideal dialectics. He emphasized the need that an organic whole is always parts. His plurality of worlds formed a living whole. "It is not believe that any part of the world and organic structure." In his numerous other worlds, Bruno assigned human species and held that nat "The ruler of our earth is not man, breathes in common through the uniqueness of the earth's change, and in unifying the Neo single active principle, Bruno conception of the cosmos.

In the final phase of his philosophy, individual active substances or soul-driven atoms or monads not only to corpuses of matter the world soul, God, and the unity of one degree could include them, and all were parts of the s.

The distinctive feature of the dialectical process is the k of nature and its immanent self-grown, changing, and evolving postulated a more radical interplatonism and more strongly hierarchical social order and it received authority of Aristotle.

**Vitalism**

The most radical analysis of act by Paracelsus and later refined (1577-1644), his son Francis Anne Conway. In this theory,
al, explained change. The atoms were fused into a single inner principle of motion, a corporeal opposite. Matter could return to nothingness; “mutable,” “arrangeable and of all things. The active id not mix by composition hold matter intact, keep its position: “It is exactly like of the family at home, I but fabricates from within, etc. . . . It winds the beam, the thread, restrains, tempers, distributes the spirits. . . .” On it achieved an absolute unity and opposition of contraries within the universal spiritual natures and to arrange distribution.

And then, “necessitated by abandoning its architecture ceal causes the ruin of the rary elements, breaking the composition.”

ancient priestess of gnostic unification and dissolution of the Triumphant Beast. The reality in change. One terms of its opposite. Pleasure of past boredom, walking in ity with respect to hunger: never pleasing,” says Sophia, . . . Motion from one contrary points come[s] to satisfy similarity between one contrary uses more with the other than ophia, Bruno’s Saulino pointed out that it is the magician them. Everything comes “from into contraries, to contraries; there is action and reaction, there is motion, there is diversity.” Reality was thus defined in terms of activity and process. Cosmic unity was maintained through the coming together and dissolution of opposites. The source of activity in nature was the universal spirit, the immanent activity of God within nature.

Bruno’s dialectic stressed the unity rather than the struggle of opposites, anticipating idealist rather than materialist dialectics. He emphasized the harmony of the whole, pointing out that an organic whole is always more than the sum of its parts. His plurality of worlds within the infinite universe formed a living whole. “It is not reasonable,” he wrote, “to believe that any part of the world is without soul life, sensation, and organic structure.” In his claim for the existence of innumerable other worlds, Bruno assigned no prime position to the human species and held that nature was everywhere uniform. “The order of our earth is not man, but the sun, with the life which breathes in common through the universe.” In questioning the uniqueness of the earth-sun system, in emphasizing change, and in unifying the Neoplatonic soul and spirit into a single active principle, Bruno challenged the hierarchical conception of the cosmos.

In the final phase of his philosophy, Bruno focused on individual active substances or minimal units in nature. These soul-driven atoms or monads of different degrees applied not only to corpuses of matter, but to planetary systems, the world soul, God, and the universe as a whole. The monads of one degree could include those of another degree within them, and all were parts of the same underlying substance.

The distinctive feature of the naturalist philosophy was the dialectical process as the key to both the organic unity of nature and its immanent self-motion. Nature was a constantly growing, changing, and evolving organism. Naturalism thus postulated a more radical interpretation of change than Neoplatonism and more strongly reflected the breakup of the hierarchical social order and the movement to question the received authority of Aristotle.

Vitalism

The most radical analysis of activity in nature was put forward by Paracelsus and later refined by Jean Baptiste Van Helmont (1577-1644), his son Francis Mercury Van Helmont, and Anne Conway. In this theory, matter and spirit are unified
Carolyn Marchant

into a single, active vital substance. Paracelsus’ cosmos was infused by Neoplatonic, gnostic, Stoic, and Christian ideas, yet his philosophy of matter and activity was a monistic idealism. Here the term vitalism designates the unity of matter and spirit as a self-active entity, in which the spiritual kernel is considered the real substance and the material “cover” a mere phenomenon.

Paracelsus’ theory of the four elements as active entities rather than passive substrata was expounded in his Archidaxis (published in 1570). Although the four elements might all exist in a given object, only one of them attained perfection as the “ruling power” of that object, growing yet remaining invisible within it. The other three were so imperfect as not to warrant being called elements, in the true sense of “active substances.” The observed individual object was merely a cover for the real immanent active soul.24

The theory of the elements was elaborated in a treatise attributed to Paracelsus and published posthumously in 1564, entitled The Philosophy Addressed to the Athenians. Although some have questioned the authenticity of this treatise on purely textual grounds, the doctrine itself is regarded as genuine and was accepted as such by the generation following Paracelsus. Here the four elements were essentially spiritual self-active forces with a self-determining principle (archeus) guiding their unfolding lives through time. The observable sensible elements and material objects were merely gross manifestations of the subtle soul that was the element itself. By a cosmic separation, the elements were generated from the uncreated mysterium Magnum—the great mystery or “first mother of all creatures”—and folded back into it at the end of created time.25

Each element formed a world of its own, and each of the four worlds developed and evolved independently of the others through a consensus of actions. The elements did not mix in composition, but existed simultaneously and independently in each individual object. The predominant element in the object determined the world to which it belonged and became its guiding kernel or soul.

Each element was a matrix or mother of one of the four worlds emanating from it. Thus, from water, a unique world was created: fish of all forms and kinds; fleshy animals; marine plants such as corals, trina, and citrones; marine monsters; the elementals (nymphae, sirens, dramas, lorinds, and mesders); and stones such as beryl, crystal. Growth was continually being perfected. Waters existed—rivers, streams, rive the others.

From the terrestrial separate: the metallic minerals, gems of and chalk; flowers, herbs—men—the partakers of eters included the earthy elementals and giants.

Air, like the other elements, is of its own kind—invisible and impalpable, like produce of the elements. Aerial speech, thoughts, and actions are the element air.

The fourth element, fire, produces all things. The sun and the sun as its daughters, produce growths and mineral products; responsible for an object’s growth as a elemental soul produces fire; it appeared as a living eternally the element fire, but in actuality is from the element earth. Within the element air, and whatever consorts with the harmonious unfolding of the four elements operated upon sensus. In this sense, all nourishment from harmony were weakened by the “errors”.

Since all the four Paracelsian both rational and irrational created Athenienses, was only one a natural world. This text presents the world within nature, in harmony with it. “That philosophy is to assign all happiness and eternal is, the earth, and that is a fool are the noblest of creatures. These are not the only beings in our world.

Paracelsian epistemology, as a basis, was based on the power of the individual body and spirit. As microcosms
The World as an Organism

and stones such as beryl, crystal, amethyst, and amber. New
growths were continually being produced as the separation
was perfected. Waters existed as separate kinds rather than
degrees—springs, streams, rivers, seas—none precisely like
the others.

From the terrestrial separation sprang a second world—
the metallic minerals, gems of manifold forms, stones, sands,
and chalk; fruits, flowers, herbs, and seeds; sensible animals,
and men—the partakers of eternity. The terrestrial separation
included the earthy elementals: gnomes, sylvesters, lemuris,
and giants.

Air, like the other elements, generated only things of its
own kind—invisible and impalpable according to the principle
that like produces like. Aerial creatures like witches had
aerial speech, thoughts, and actions but ultimately returned
to the element air.

The fourth element, fire, put forth stars, celestial objects,
and the sun as its daughters, together with its own floral
growths and mineral products. As an element, fire was
responsible for an object’s growth. In green wood, fire existed
as an elemental soul producing growth, whereas in burning
fire it appeared as a living eternal soul. “Whatever grows is
of the element fire, but in another shape. Whatever is fixed
is from the element earth. Whatever nourishes is from the
element air; and whatever consumes is from the element water.”

The harmonious unfolding of the four worlds formed from
the four elements operated on the principle of mutual con-
sensus. In this sense, all four elements derived strength and
nourishment from harmony with the others or conversely
were weakened by the “errors” of the others.

Since all the four Paracelsian elemental worlds contained
both rational and irrational creatures, mankind, in the Philosoplia
ad Athenienses, was only one among the other beings of the
natural world. This text presented a view that people existed
within nature, in harmony with the whole rather than above
it. “That philosophy then is foolish and vain which leads us
to assign all happiness and eternity to our element alone, that
is, the earth, and that is a fool’s maxim which boasts that we
are the noblest of creatures. There are many worlds and we
are not the only beings in our world.”

Paracelsian epistemology, as a reflection of holistic cosmology,
was based on the power of the imagination, as the link between
body and spirit. As microcosms, human beings were miniature
replicas of the greater macrocosm; both were composed of a physical body, a soul that was the life and breath obtained from God, and, uniting the two, a sidereal or astral spirit. The astral spirit came initially from the stars and was the source of divinity in all sublunar life, including animals, plants, minerals, and stones. In human beings, the astral spirit was located in the heart, circulated throughout the body, and formed the imaginative faculty joining the physical with the spiritual world.²⁸

The imagination, as the sum of the astra within each individual, bestowed the power to create visible images of the astra through the application of art. It was the source of an inner knowledge of the divine plan, vital action in the mundane world, and was so powerful that it could reciprocally affect the heavens whence the astra initially derived. But because the astra acted out of necessity, reason must be used to control their power so that nature could be used purposively.

In the organic world, magicians, metallurgists, and healers viewed themselves as the servants of nature, assisting, mimicking, and perfecting natural processes through art (technē) for human benefit. Thus Paracelsus wrote in his Crude concerning healing: “There is nothing in me except the will to discover the best that medicine can do, the best there is in nature, the best that the nature of the earth truly intends for the sick. Thus I say, nothing comes from me; everything comes from nature of which I too am part.” But elsewhere he wrote that nature exists for human use: “It is God’s will that nothing remain unknown to man as he walks in the light of nature; for all things belonging to nature exist for the sake of man.”²⁹

Viewed from within the organic context, there is nothing inconsistent in the two statements, yet when the organic bond between nature and human beings is severed, nature becomes a passive object rather than an active partner.

With his philosophical theories and medical practices, Paracelsus challenged the orthodoxy of the establishment. He advocated the freedom of ordinary people to study nature for themselves and believed in a self-active natural world and individual liberty. The bulk of his knowledge was obtained from lay people; his sources were women healers, barbers, bathkeepers, miners, and his own empirical observations, in addition to those of learned physicians; he visited universities only as a wandering journeyman scholar. He belonged to the guild of grain merchants rather than that of doctors and acted as an army surgeon, a position physicians. His life became a series of authorities and ruling officials. He cured princes and public officials of recovery by the orthodox p. success and fame procured him and influential town leaders. But s would alienate them and he was secretly in order to escape arrest.³³

Incensed by enslaving tradition and misery of the people, he idea that the alchemists moved from spas to mines to healing the sick. Often he refused poor and sick, while at the same cheated by the rich. His violent rea would then make it necessary for Paracelsus’ medical and chem stimulus to numerous sixteenth followers working toward a advocating the direct study of books of the ancient Greeks. But of nature became affiliated with political ideas that surfaced in late

The animistic concept of natural organism came to be associated libertarian ideas. Social chaos, peace could be fed by the assumption stand the nature of the world manipulate its spirits by magic.³¹ magic to control these spirits ex but particularly among the lower the construction of magical appar and charms, the prep. exorcism of demons, fortune tell lost relatives, and lovers were ope by the village wizard. Every Eorc healers, sorcerers, and magicians had resulted from years of trai cures handed down from mediev for the presuppositions of mag to the natural magic tradition, bu was an ancient folk tradition.

The natural philosophy of Jean
The World an Organism

as an army surgeon, a position unacceptable to academic physicians. His life became a series of clashes with orthodox authorities and ruling officials. In city after city, he was able to cure princes and public officials pronounced incapable of recovery by the orthodox physicians. In each case, his success and fame procured him friends among the wealthy and influential town leaders. But soon his opinions and actions would alienate them and he would be forced to leave town secretly in order to escape arrest.30

Incensed by enslaving traditions and moved by the poverty and misery of the people, he identified with the peasants as he moved from spas to mines to towns attracting crowds and healing the sick. Often he refused to take money from the poor and sick, while at the same time he was again and again cheated by the rich. His violent reactions against these injustices would then make it necessary for him to leave the town.

Paracelsus' medical and chemical contributions became a stimulus to numerous sixteenth- and seventeenth-century followers working toward a new empirical methodology advocating the direct study of nature itself, instead of the books of the ancient Greeks. But his philosophy of the activity of nature became affiliated with revolutionary pantheistic and political ideas that surfaced in later neo-Paracelsist movements.

The animistic concept of nature as a divine, self-active organism came to be associated with atheistical and radical libertarian ideas. Social chaos, peasant uprisings, and rebellions could be fed by the assumption that individuals could understand the nature of the world for themselves and could manipulate its spirits by magic.31 A widespread use of popular magic to control these spirits existed at all levels of society, but particularly among the lower classes. The raising of spirits, the construction of magical apparatus, the manufacture of talismans and charms, the preparation of love potions, the exorcism of demons, fortune telling, and hunts for treasures, lost relatives, and lovers were operations directed or performed by the village wizard. Every European village had its popular healers, sorcerers, and magicians, whose magical procedures had resulted from years of transmitting verbal recipes and cures handed down from medieval and ancient times. Articulation of the presuppositions of magical theory may be attributed to the natural magic tradition, but the practice of magic itself was an ancient folk tradition.

The natural philosophy of Jean Baptiste Van Helmont, the
seventeenth-century follower of Paracelsus, likewise emphasized the activity of matter. He called the dynamic principle the archeus, the organizer of specificity within matter. It originated ultimately from the divine light and organized the living developing seeds of matter—the semina. Van Helmont transformed Paracelsus’ four elements into a plurality of seeds each containing its own inner activity: “In the whole order of natural things nothing of new doth arise which may not take its beginning out of the seed, and nothing to be made which may not be made out of the necessity of the seed.”

He strongly took issue with Aristotle’s doctrine of the four causes and held that two causes “joined or knit together” were sufficient to explain nature. The two unified principles were the efficient cause, or archeus (the chief workman), and the material cause, or plurality of seeds. “Wherefore, after a diligent searching, I have not found any dependence of a natural body but only on two causes, on the matter and the efficient, to wit, inward ones.” The two were joined into a single unit, the generating seed. The efficient cause was the inward agent of the semina—the moving principle or immanent active principle in the material seed.

Thus Aristotle erred in stating that “the thing generating cannot be a part of the thing generated.” For Van Helmont, the inward agent was the generative principle; nothing new arose in nature that did not begin from the efficient power in the material seed.

The inward agent was also called the chief or master workman. In vegetables, it was a juice; in metals, it was thicker and homogeneous with the material; in other things, it was an “air.” It was the inward spiritual kernel of the seed through which the seed developed and grew to full fruitfulness. “The archeus, the workman and governor of generation, doth clothe himself... with a bodily clothing... and begins to transform matter according to the perfect act of his own image.”

The formal cause postulated by Aristotle, said Van Helmont, was not really a cause but an effect, the end of generation. For Aristotle, the more perfectly the form was attained, the more actuality the object had achieved. For Van Helmont, the actuality or activity was the inner agent within the matter. Form and matter could not be separated from one another. Secondly, the efficient or moving cause could not be external to matter, but must be within it. Thirdly, the final or teleological cause, which contained the “instructions of things to be done,” could not be external to nature distinct from the efficient cause. The efficient seminal cause was position. Van Helmont admitted that external function as outward awakeners. To him according to art.

Matter and the efficient cause explanatory entities fused toge natural definition is to be fetched both causes, because both together of the thing.”

The activity within each particle and process were primary in the matter of the world, there exists within each individual determined its destiny.

These ideas were set within a work which presupposed that God, and therefore good. Gerrard the secrets of nature is to know the spirit or power of wisdom and dwell within and governs both the earth, below, as grass, plan mankind.” An early Ranter belie God, every creature that hath life from God, and shall return into him as a drop in the ocean.

writing in 1650, agreed that “God living thing, man and beast, fish thing, from the highest cedar to in this dog, this tobacco pipe, he Coppin, whose Divine Teaching beliefs, held that “God is all in of...
er of Paracelsus, likewise emphatic. He called the dynamic principle of specificity within matter. It is the divine light and organized of matter—the semina. Van Helmont our elements into a plurality of own inner activity: “In the whole fusing of new doth arise which may of the seed, and nothing to be made of the necessity of the seed.”

With Aristotle’s doctrine of the four uses “joined or knit together” were . The two unified principles were eus (the chief workman), and the seeds. “Wherefore, after a diligent any dependence of a natural body in the matter and the efficient, to o were joined into a single unit, ficient cause was the inward agent principle or immanent active d.

stating that “the thing generating ing generated.” For Van Helmont, generative principle; nothing new ot begin from the efficient power o called the chief or master workman, ice; in metals, it was thicker and trial; in other things, it was an “air,” kernel of the seed through which w to full fruitfulness. “The archus, of generation, doth clothe himself ... and begins to transform matter of his own image.”

ed by Aristotle, said Van Helmont, an effect, the end of generation. rrectly the form was attained, the id achieved. For Van Helmont, the inner agent within the matter, t be separated from one another. moving cause could not be external it. Thirdly, the final or teleological “instructions of things to be done,” could not be external to nature nor should it be considered distinct from the efficient cause, the archus. But, although the efficient seminal cause was postulated to be within nature, Van Helmont admitted that external occasional causes could function as outward awakener. These outward agents operated according to art.

Matter and the efficient cause were therefore sufficient as explanatory entities fused together into one unit. “Every natural definition is to be fetched ... from the conjoining of both causes, because both together do finish the whole essence of the thing.”

The activity within each particle of matter meant that activity and process were primary in the order of things. Within the matter of the world, there existed an inherent spontaneity, and within each individual being an inner-directedness determined its destiny.

These ideas were set within a vitalistic philosophical framework which presupposed that nature was active, filled with God, and therefore good. Gerard Winstanley wrote, “To know the secrets of nature is to know the works of God ... how the spirit or power of wisdom and life, causing motion or growth, dwells within and governs both the several bodies of the stars and planets in the heavens above; and the several bodies of the earth below, as grass, plants, fishes, beasts, birds, and mankind.” An early Ranter belief held that “every creature is God, every creature that hath life and breath being an efflux from God, and shall return into God again, be swallowed up in him as a drop is in the ocean.” Jacob Bauthumley, a Ranter writing in 1650, agreed that “God is in everyone and every living thing, man and beast, fish and fowl, and every green thing, from the highest cedar to the ivy on the wall ... God is in this dog, this tobacco pipe, he is me and I am him.” Richard Coppin, whose Divine Teachings (1649) influenced Ranter beliefs, held that “God is all in one and so is in everyone.”

The sects pushed their radical ideas even further by undermining the basis for the patriarchal family. For the Familists, members of the Family of Love, a pantheistic sect emphasizing tenderness and quiet sympathy, founded in 1580, marriage was changed from a sacrament to a contract, and divorce became simply a matter of dissolution before the congregation. The Diggers advocated marriage based solely on love regardless of station or property. The Ranters challenged monogamy and believed that wives could be held in common. At Ranter
and Quaker meetings, stripping to nakedness in church as a symbol of resurrection was not uncommon, and sexual freedom for both men and women was broached. Through membership in the new sects, women enjoyed significantly more religious freedom than in either the Church of England or the Catholic Church. The Puritans had elevated the female to helpermeet in the family, assigned her the task of instructing the family in religious matters, and argued for an end to wife beating, though women were still considered subordinate partners in the marriage relationship. In the sects, however, equality before God was stressed; women could be admitted to membership without their husbands and were free to preach, prophesy, and participate in governance. In many congregations, women outnumbered men, and in London women preaching on Sundays became common. Those women who joined the new religious sects were undoubtedly attracted by the freedoms and equalities found there. (Such freedoms assumed by women were especially pronounced in Quakerism, a sect that claimed the allegiance of Francis Mercury Van Helmont and Anne Conway, who continued the vitalistic philosophy of the fusion of spirit and matter.) After the Restoration of 1660, with the reassertion of Anglican authority, Paracelsian and pantheistic ideas were denounced and refuted.

Similarly, in seventeenth-century France, Robert Fludd (1574-1637), a follower of Paracelsus and the naturalists, became identified with the “Rosicrucian scare” (a neo-Paracelsist movement), resulting in an examination and denunciation of his entire philosophy by the mechanists—Marin Mersenne, Pierre Gassendi, and René Descartes. France in the 1620s-40s and England in the 1650s-80s were at the center of the mechanical reconstruction of the cosmos. In both countries, ideas associated with the organic world view and with animistic and pantheistic philosophies were severely criticized.

Fludd’s philosophy presented a synthesis of ideas from the preceding Neoplatonic, naturalist, and vitalist traditions. In his Neoplatonic hierarchical cosmos, founded on the microcosm-macrocosm analogy, God infused the world with his eternal spirit, which was housed in the sun and transmitted through the angels in the four corners of the world to the winds. The winds, in turn, representing the contrary principles of hot and cold, acted through a dialectical process of contraction and expansion, conveying activity to the clouds and air. The two contrary active forces produced the opposites observed in nature: dilution, muddification, transparency; cold winds produced condensation, fixation, and opacity; the source of activity, the indirect operation of the wind “endowed with most essential in essential and inward act, form, likewise moved through the introverted mind, represented its vehicle. God’s ultimate source of these dialectic ends and the basis of cosmic unity are.

From the spectrum of Renaissance outlined above, the mechanists with their presuppositions at the conserval denounced those associated with political perspectives. The organic and animistic features and describable components would and far-reaching effect of the Renaissance.

The breakup of the old order—only a period of challenge—a and a new ideas found articulation—and anxiety. Fear that nature would the cosmic frame would of disorganization increase. The earth, changing images of the species of disorder within the soul of the realization that the old system was

Notes
The World as an Organism

The two contrary active principles, heat and cold, produced the opposites observed in nature. The hot winds caused dilation, mollification, rarefaction, volatility, and transparency; cold winds produced contraction, hardening, condensation, fixation, and opacity. Matter for Fludd was passive; not the source of activity, it was made active through the indirect operation of the winds. The angelical winds were "endued with most essential internal agents" and had "an essential and inward act, form, and principle." The clouds likewise moved through the internal agency of the spirit and represented its vehicle. God's activity in the world was the ultimate source of these dialectical tensions between contraries and the basis of cosmic unity and animate life.

From the spectrum of Renaissance organicist philosophies outlined above, the mechanists would appropriate and transform presuppositions at the conservative or hierarchical end while denouncing those associated with the more radical religious and political perspectives. The rejection and removal of organic and animistic features and the substitution of mechanically describable components would become the most significant and far-reaching effect of the Scientific Revolution.

The breakup of the old order in western Europe was not only a period of challenge—a time when a broad spectrum of new ideas found articulation—but also a period of uncertainty and anxiety. Fear that nature would interdict her own laws, that the cosmic frame would crumble, and that chaos and anarchy would rule lay just beneath the sheen of apparent order. Fostered by the competitive practices of the new commercialism and reinforced by the religious wars of the Reformation period and the growing stress on individualism and the senses over the authority of the ancients, the perception of disintegration increased. The ecological deterioration of the earth, changing images of the cosmic organism, and a sense of disorder within the soul of nature reflected an underlying realization that the old system was dying.

Notes


8. *Ibid.*, p. 120.


12. Vaughan, p. 78.


The World an Organism


16. Della Porta, 1558 facsimile, quotations in order on pp. 2, 33, 63, 64, 73.


22. Quotes in Horowitz, p. 27.


N.J.: Rutgers University Press, 1964), p. 91. See also Yates, Bruno, Chaps. 11-20; 
and Lawrence Lerner, "Galileo and the 
Archives Internationales d'Histoire des 
5), pp. 223-46; E. Gosselin and L. Lerner 
American 228 (1973): 84-94; Antoine 
Worlds of Giordano Bruno (Springfield, 
by Singer, Giordano Bruno: His Life and 
nan, 1950); Robert Westman, "Magical 
McGuire, Hermeticism and the Scientific 
University of California Press, 1977), 
La Conception de la Nature chez Giordano 
the Renaissance Philosophy of Giordano 

"de Numero et Figura, written ca. 1590 
Opere Latine, ed. F. Fiorentino and others, 
2, vols. 1-2, pp. 323-473. For a discussion 
istory of Modern Philosophy, trans. B. E. 
irst published 1570), in Sämtliche Werke 
trans. Paracelsus, His Archidoxis Com-
the genuine Way of Making Quintaessence, 
s, etc. trans. J. H. Oxen (London, 1660) 
the philosophy of Paracelsus include 
ibus: Natur und Offenbarung (Hanover: 
Pagel, "Paracelsus and the Neoplatonic 
Amphit (1960): 125-66; W. Pagel 
and Medieval Sources," in Lloyd C. 
Mullhauf, eds., Medicine, Science, and 
ohns Hopkins University Press, 1968), 
the Elusiveness of Paracelsus," Bulletin 
5 (1952): 201-17. On Paracelsus' theory 
see W. Pagel, Paracelsus (Basel: Karger, 
Pagel, "The Prime Matter of Paracelsus," 
37-35.

d Athenienses," Sudhoff, ed., Sämtliche 
389-423. The following discussion is 
1, 403, 407, 395-96, 398. Two English 
iss, Three Books of Philosophy Written 
ology Reformed and Improved, trans. H. 
Paracelsus' "The Philosophy Addressed 
ed, Hermetic and Alchemical Writings, 
question of authenticity, see Pagel,

Paracelsus, pp. 89-91, notes 237-38 and W. Pagel, "Recent Paracelsian 
the text as if it were Paracelsus' own in his book The Chemical 
Philosophy: Paracelsian Science and Medicine in the Sixteenth and 
Seventeenth Centuries, 2 vols. (New York: Science History 


28. Owen Hannaway, The Chemists and the Word: The Didactic 
Origins of Chemistry (Baltimore, Md.: Johns Hopkins University 
Press, 1975), pp. 26, 30-31, 32. See also D. P. Walker, "The Astral 
Body in Renaissance Medicine," Journal of the Warburg and 
122-23.

29. Paracelsus, "Credo," Selected Writings, ed. Jolande Jacobi (Princeton, 

30. Pagel, Paracelsus, pp. 5-30, esp. 17, 23; Jacobi, ed., p. 4; Waite, 

31. On Paracelsus' influence in chemistry and medicine, see Allen 
(New York: Watts, 1965) and A. Debus, The Chemical Dream of the 
ideas associated with Paracelsianism, see P. M. Rattansi, "Paracelsus 
magic, see Keith Thomas, Religion and the Decline of Magic (New 

32. Johann Baptist van Helmont, Works, trans. J. Chandler (London: 
Lodowiec, Lloyd, 1664), quotations on pp. 32, 30, 29, 32, 35, 29, 
30. On van Helmont's philosophy, see W. Pagel, "The Religious 
and Philosophical Aspects of Van Helmont's Science and Medicine," 
Supplements to the Bulletin of the History of Medicine, no. 2 (1944), 
p. 20; W. Pagel "The Spectre of Van Helmont," in Mikulas Tich 
and Robert Young, eds., Changing Perspectives: Essays in Honor of 
Joseph Needham (London: Heineman, 1973), pp. 100-109; Debus, 


34. Keith Thomas, "Women in the Civil War Sects," Past and Present, 

35. Robert Fludd, Philosophia Magna (Gouda: Rammazeni, 1638); 
Eng. trans.: R. Fludd, Mosaicall Philosophy (London, 1659), pp. 59-60, 
79-80, 91-92. See also, Allen G. Debus, The English Paracelsians 
(New York: Watts, 1965), pp. 105 ff.; A. Debus, Chemical Philosophy, 
vol. 1, pp. 205-93; W. Pagel, "Religious Motives in the Medical 
Biology of the XV111 Century," Bulletin of the Institute of the History 
of Medicine [Johns Hopkins University] 3 (February 1935): 270; 
Kubrin, How Sir Isaac Newton Helped, p. 15.