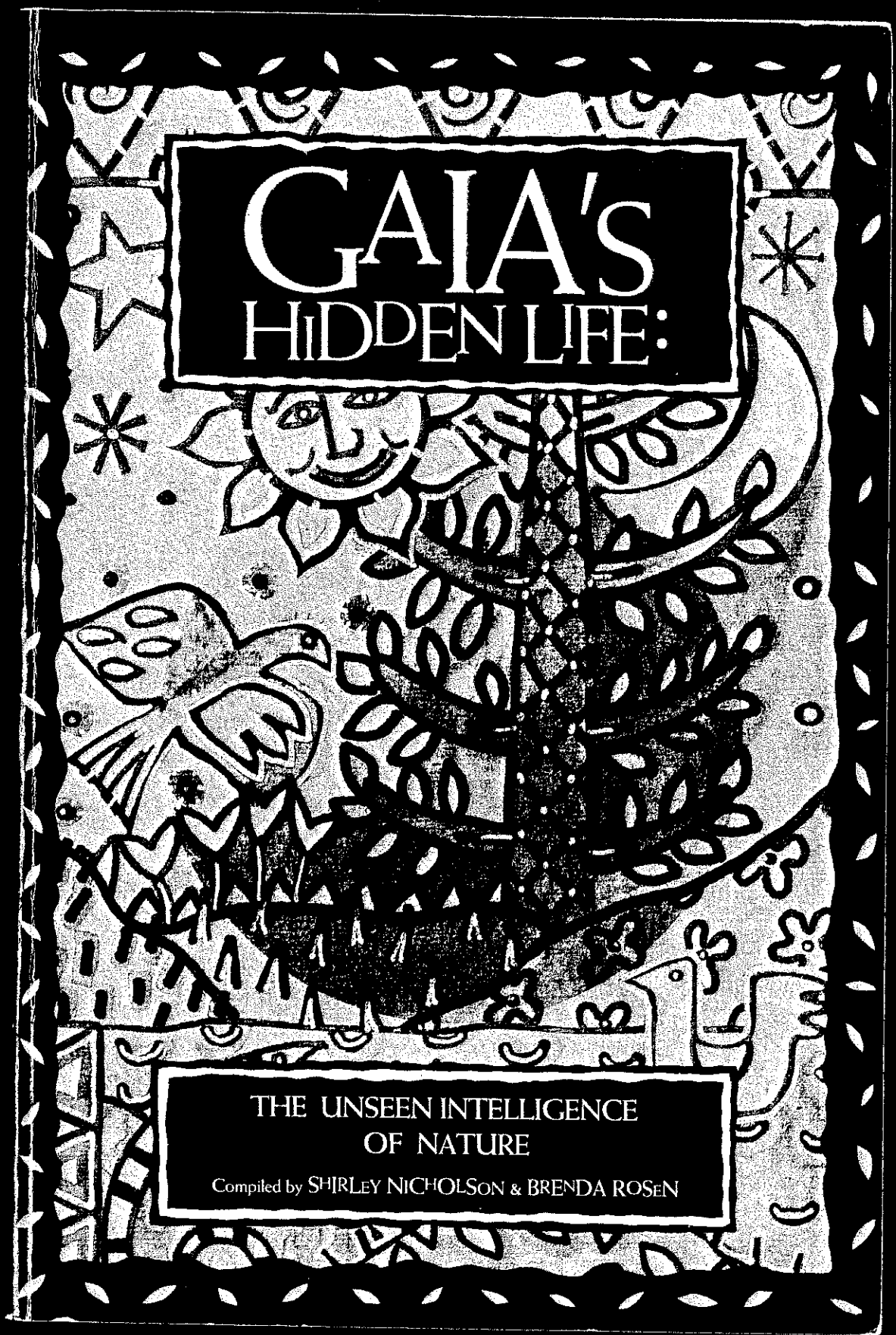
GAIA's
HIDDEN LIFE:
THE UNSEEN INTELLIGENCE
OF NATURE
Compiled by SHIRLEY NICHOLSON & BRENDA ROSEN

#39

Carolyn Merchant

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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 organismic 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 suffer with it," wrote Giambattista della Porta (1535-1615).[1] 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."[2]

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 unification 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.

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."[3]

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 sulfuric, 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.[4]

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.[5]

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 inhered. It originated as an elite aristocratic form of the magical world view in the Florentine Platonic Academy in the late fifteenth century.

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A revival of Neoplatonic philosophy and an interest in the writings of Hermes Trismegistus took place under the sponsorship 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.[6]

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 macrocosmic 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 *Timaeus*, 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."[8]

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.[9]

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.[10]

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."[11]

Likewise, for Thomas Vaughan, the soul of the world, trapped i freedom. He considered the Arist form too limiting and absurd to b Motion was caused by a principl world, the *anima mundi*. But li Vaughan considered matter to be with no motive faculty at all."[12]

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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."[12]

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.[13] 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."[14]

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."[15] 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 Antipho 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]

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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-peach," 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

science and a concept of the human being as a designer of experiments who by wresting 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.[17] 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.[18]

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."

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ive natures into perpetual conflict."

The two fundamental active principles, hot and cold, appeared in corporeal garb as the sun and the earth, sensible manifestations 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 interpenetrated 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.[19]

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.[20] 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, tempers, 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,

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Bruno's dialectic stressed the u of opposites, anticipating idea dialectics.[21] He emphasized the ha out that an organic whole is alw parts. His plurality of worlds formed a living whole. "It is nc believe that any part of the world and organic structure."[22] In his numerable other worlds, Bruno as human species and held that nat "The ruler of our earth is not man, breathes in common through t the uniqueness of the earth-s change, and in unifying the Neo single active principle, Bruno conception of the cosmos.

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The distinctive feature of th the dialectical process as the k of nature and its immanent self-n growing, changing, and evolvir postulated a more radical interp platonism and more strongly hierarchical social order and th received authority of Aristotle.

Vitalism

The most radical analysis of acti by Paracelsus and later refined (1577-1644), his son Francis Anne Conway. In this theory,

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.[21] 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."[22] 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 ruler 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 corpuscles 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.[23]

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

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 *Archidoxis* (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 (nymphs, sirens, dramas, lorinds, and nesder);

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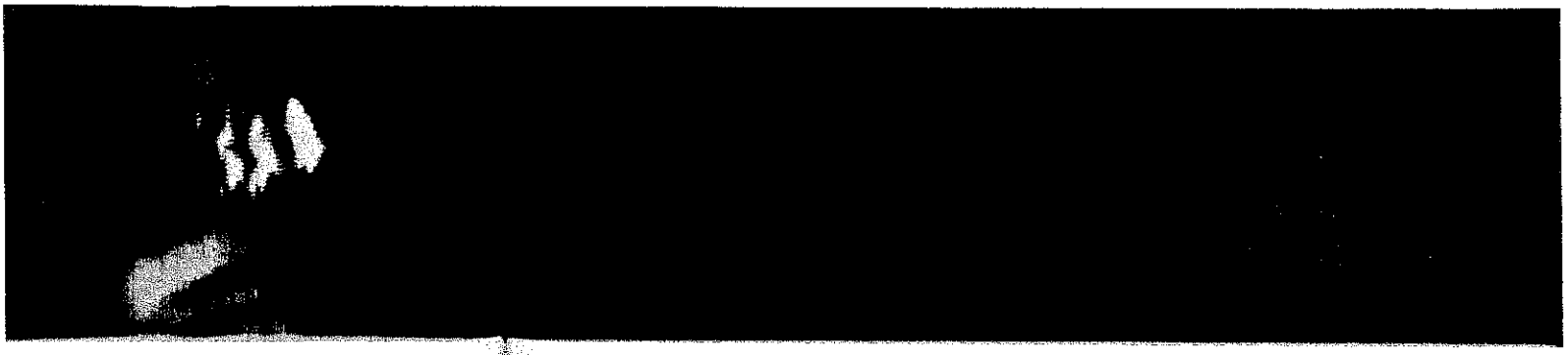

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and stones such as beryl, crystal, amethyst, and amber. New growths were continually being produced as the separation was perfected. Waters existed as separate kinds rather than degrees—springs, streams, rivers, seas—none precisely like the others.

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, lemurs, 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."[26]

The harmonious unfolding of the four worlds formed from the four elements operated on the principle of mutual consensus. 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 *Philosophia 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."[27]

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 *Credo* 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

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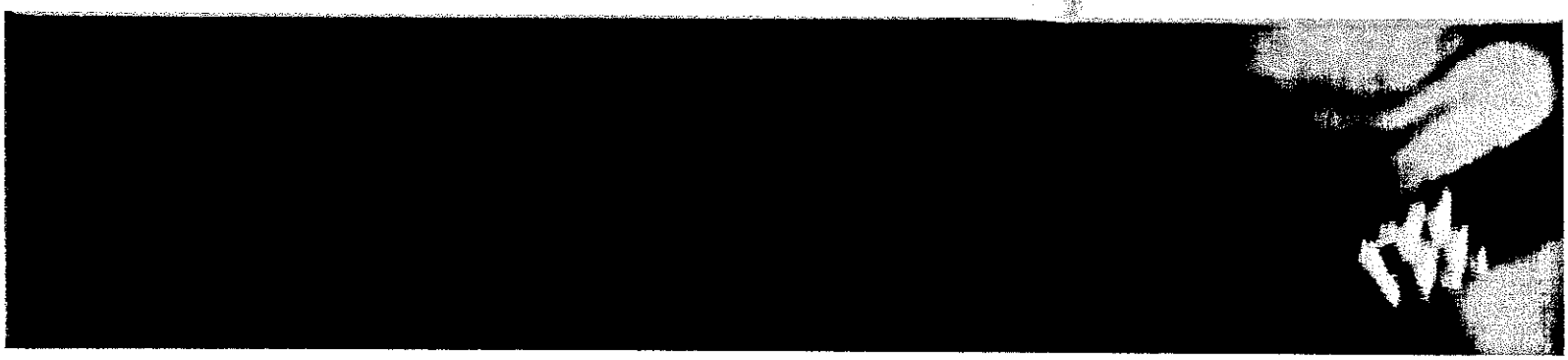

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as an army surgeon, a position unacceptable to academic physicians. His life became a series of clashes with orthodox authorities and ruling officials. In city after city, he was able to cure princes and public officials pronounced incapable of recovery 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."[32]

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,"

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could not be external to nature nor should it be considered distinct from the efficient cause, the *archeus*. But, although the efficient seminal cause was postulated to be within nature, Van Helmont admitted that external occasional causes could function as outward awakeners. 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. Gerrard 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.[33]

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 helpmeet 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.[34] (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

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1. Giovanni Battista della Porta,
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1658), p. 13.

and air. 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.[35]

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.

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