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THE THEOLOGY OF ELECTRICITY



FRIEDRICH CHRISTOPH OETINGER, One of the noted "electrical theologians" of the 18th century.

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# THE THEOLOGY OF ELECTRICITY

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*On the Encounter and Explanation  
of Theology and Science in the  
17th and 18th Centuries*

*by*  
**Ernst Benz**

Translated  
by Wolfgang Taraba

Edited and with an Introduction  
by Dennis Stillings

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ATHANASIUS KIRCHER, *Magnes sive primus artis* bk. 3, *Artis, magneticae mundus sive catena magnetica* (1643), which treats of the magnetic force of the earth. The frontispiece depicts the double-headed eagle electrified and magnetized.

## Editor's Preface

In 1968, I was working as a research librarian at Medtronic, Inc., a major manufacturer of medical devices, in particular the implantable cardiac pacemaker. Late in that year, Earl Bakken, founder of Medtronic, approached me about a special project—he wanted me to collect the history of bioelectricity and electromedicine, in the form of printed materials and original apparatus. This project eventually led to the establishment of The Bakken: A Library and Museum of Electricity in Life, which currently houses some 12,000 publications and 2000 artifacts on these subjects.

Ironically, before I took on this project, I had no interest at all in electricity and the physics of it. I was immersed in German studies in graduate school, where I was mostly interested in applying the methods of Jung's analytical psychology to the interpretation of literature, and I was teaching 18th-century humanities. It was through C. G. Jung's work, especially his *Psychology and Alchemy*, that I came to develop an interest in the history of electricity since, through Jung, I was able to see that much of the imagery and nomenclature of alchemy had been transferred, virtually unchanged, into the speculations of the new electrical science of the 18th century. When I perceived this, I was able to trace the myths, metaphors, and archetypal images that permeated 18th-century electrical thinking back to alchemical and to certain Gnostic writings.

In 1972, I presented a paper at the 24th International Conference of the History of Medicine in which I emphasized some of the ancient images and ideas that led to the association of the cardiovascular system with electrical activity. After my lecture, a number of people approached me and asked if I knew of the recently published work by Ernst Benz, the *Theologie der Elektrizität*. I had not yet heard of the book, but said I would get a copy as soon as possible. A couple of years went by before I finally received a copy through a foreign book search service. A brief glance at the contents of the book made me very excited: it looked as though Benz was the only other person beside myself who had perceived the hermetic background of electrical philosophizing. I soon commissioned Wolfgang Taraba to do this translation.

## Benz's Program

Benz's main program in *Theology of Electricity* is to concern himself with the "interrelationship of the religious and scientific consciousness." More specifically, Benz intends to establish the claim that the "discovery of electricity and the simultaneous discovery of magnetic and galvanic phenomena were accompanied by a most significant change in the image of God." Furthermore, Benz claims that these discoveries led to a "completely new understanding of the relation of body and soul, of spirit and matter . . ." (p. 2).

Benz illustrates his concern with the traditional split between science and religion by juxtaposing the personalities and perceptions of Franklin and Mesmer. In terms of Jungian typology, the former might be said to represent the archetypal American extravert, the empiricist and practical manipulator of the external world. Mesmer, on the other hand, is portrayed as operating within the realms of intuition and feeling, ill adapted to the practicalities of making his methods acceptable to the powers-that-be; he is tuned to cosmic feeling, which empathizes with the workings of nature, and which in turn is abstracted from nature and safely ordered within a metaphysical system. Franklin might argue that a ball is spherical, hard, and suitable for a number of uses; Mesmer that it is gold-colored, round, and therefore a symbol of cosmic wholeness. This argument, suitably expanded and generalized, lies close to the heart of the persistent opposition between science and religion—Franklin's side giving dominant value to the objects of external reality; Mesmer's, to the inner states evoked by the object.

Benz looks forward to the time when religion and science will resolve their apparent differences. He sees the effect of the "electrical theologians" as demonstrating that science and religion do motivate each other, and it is important that we examine a few of the themes that demonstrate this process.

## Benz and the History of Electromedicine and Bioelectricity

Electrical and magnetic phenomena have been associated with ideas of the soul, with divine judgment, and with psychic matters, from the beginnings of recorded history and probably before. The thunderbolts of Zeus were cast down upon those who offended him. Amber and other electrics were perceived as having a kind of "soul." Ancient Sumerians wore magnetic amulets engraved with images of Marduk<sup>1</sup>—



He Who Causes Action at a Distance—to ward off those evil spirits that gave rise to specific diseases. It is possible that primitive peoples used pools of electric fish (the Mediterranean torpedo and Nile catfish) for purposes of exorcising spirits by means of subconvulsive electroshock therapy.<sup>2</sup> In fact, electroexorcism was used by J. Priestley (1733-1804),<sup>3</sup> a theologian and also the first historian of electricity. This peculiar therapy has been practiced down into our own century.<sup>4</sup>

Medical applications of the discharge of electric fish for treatment of headache, arthritis, and anal prolapse were recorded by Scribonius Largus<sup>5</sup> and Dioscorides<sup>6</sup> in the second century A.D. The electrical discharge of the live Mediterranean torpedo was used by Dawud al Antaki in the 16th century for the treatment of epilepsy.<sup>7</sup>

By the time of Harvey and Gilbert, the role of electricity and/or magnetism in the physiological functioning of the body was already a matter of wide speculation.<sup>8</sup> By the mid-18th century, it was assumed by many prominent physicians and physiologists that electricity was indeed intrinsic to the life processes of both animals and humans.<sup>9</sup> The Galvani-Volta controversy,<sup>10</sup> and many French experiments on the applications of electrical current to freshly decapitated corpses,<sup>11</sup> made it appear quite plausible that electricity was the vital fluid, and that its proper application could raise even the dead. The great Frankenstein myth, perceived and recorded by Mary Shelley in her book, *Frankenstein; or, The Modern Prometheus*<sup>12</sup> was not the imaginative flight of fancy one might at first think. At that time, electrical resurrection was probably considered, from the scientific point of view, not much more than a short-term extrapolation from what was then known about bioelectrical effects. Considering this history, it is small wonder that electricity was brought under theological scrutiny. Even as late as the 1930s, Albert S. Hyman, a New York physician who developed an early version of the artificial cardiac pacemaker, was attacked by religious proponents for interfering with the divine will<sup>13</sup>—a judgment curiously reserved for electrical physicians, since it can be argued on this basis that a wide variety of other medical interventions do the same.

Benz has been criticized for his statement (p. 15) that electrical and magnetic phenomena had not been adequately distinguished from one another by the time of Kircher (1602-1680). Even though a number of early investigators had noted the difference between the effects of amber and lodestone, and even though the great Gilbert, in his classic treatise *De Magnete*,<sup>14</sup> had clearly distinguished among electrical and magnetic effects, confusion persisted. Even in the late

18th century, learned disquisitions<sup>15</sup> addressed these distinctions, and even those between magnetism, electricity, and animal magnetism, as though these were still live topics. It appears safe to assume that the "nonspecialist" of that era was not yet completely clear about the differences. In any case, this "error" on Benz's part has no real bearing on the argument. Indeed, one could say that subsequent experimentation by Oersted, Faraday, and others—showing the intimate relation between electricity and magnetism—would have resulted in even richer metaphysical and theological speculation.

Benz is also incorrect in stating that the only means for generating "low voltage" prior to the invention of the Leyden jar (in 1744) was the electric "log" or "wand"—a glass tube set into a wooden handle, which was then rubbed with cat's fur or silk. There were, in fact, several elaborate electrostatic generators in existence before 1744, capable of producing several thousand volts, but with a very small current. (Benz also confuses electrical potential [volts] with electrical current [amps]. The Leyden jar was the first artificial device for producing large currents.)

One more small point of criticism should be made here. Contrary to Benz's evaluation, glass harmonicas, modeled after Franklin's design, need not take a back seat, in terms of tonal quality, to the instruments of Kircher and Mesmer. (see pp. 16f.)

### Alchemy Divides and Conquers

As I collected early 18th-century writings on electricity, it soon became clear to me that a great deal of symbolism, and even the nomenclature, of alchemy had been carried over into the new electrical theorizing. Merely scanning the titles of early books on electricity confirms this. Electricity is the "ethereal fire," the "desideratum," the "quintessential fire"—all expressions that would be familiar to an alchemist. For the early electrotherapist, electricity was the *medicina catholica*, the "cheap thing to be found everywhere"; it was the long-sought panacea. This belief was clearly reflected in the utterly promiscuous use of electricity in the treatment of disease. This archetypally based belief continues to be asserted in modern claims by quacks—and occasionally by serious medical practitioners—for the extraordinary unrecognized medical value of electricity, magnetism, and electromagnetic waves.

Electricity was the last of the classical sciences to be born at the time when the rule of the materialistic, mechanistic view of nature was gathering full steam, and it emerged as a sort of medical/spiritual

"fifth column" within the body of an otherwise generally mechanistic science and medicine. In physiology, even at the present time, chemical factors are emphasized over the accompanying electrical events. This emphasis is made with an insistence that makes one suspicious that bio-electricity still raises the spectre of vitalism among physiologists and biochemists. According to Robert O. Becker and Andrew A. Marino:

Practically from the time of its discovery, electromagnetic energy was identified by the vitalists as being the "life force," and consequently it has occupied a central position in the conflict between [mechanism and vitalism] for the past three centuries. While the modern view of the role of electromagnetic energy in life processes is not that of the mysterious force of the vitalists, it has nevertheless inherited the emotional and dogmatic aspects of the earlier conflict.<sup>16</sup>

Electricity also still evokes, on an unconscious level, images of that paradoxical figure of alchemy, Mercurius, and of the elusive vital fluid that transcends the merely mechanical. Indeed, the strange paradoxes of modern quantum mechanics and the endless popular speculations on the role of consciousness in the material world, not to mention the actual transmutations of metals now possible, seem to be outward manifestations of the symbols that drove alchemy and now drive modern physics.

But alchemy was fundamentally a *monstrum compositum*, an illegitimate or, more precisely, a *premature* intuitive expression of underlying symbols hopelessly enmeshed within an undiscriminated mixture of psyche and substance. After centuries of concern chiefly for otherworldly things, the world and the matter of which it is constituted had become, for the Western man of the 15th century, a great *fascinosum*—a fascination that would extend down to the present day. The 15th-century voyages of exploration and the golden age of alchemy therefore coincide. At first matter was a great mystery, a vacuum of knowledge that drew into itself the projections of the structure and dynamics of the human psyche. Mind became intimately bound up with matter, and this condition was expressed in the obscure symbolism of alchemical formulae. With the beginnings of modern chemistry and physics, alchemy split into two directions: one was that of mainstream science and technology, the other, by a more subterranean and quiet path, led toward the development of psychology and the discovery of the unconscious. Electricity, expressing both material and immaterial effects, was not readily divested of the ancient symbolic pro-

jections; hence, by its ambiguous and paradoxical nature, it brought philosophers into yet closer contact with the unconscious. On the other hand, material science could not pull itself clear from the psychological residuum that adhered to electrical theorizing, thus permitting the symbols carried by electricity to drive modern science toward accomplishments that strongly echo the goals of alchemy: the transmutation and spiritualization of matter.

The lack of a concept of the unconscious, the failure to actually achieve the transmutation of metals, and the rise and success of mechanistic science, all hastened the demise of alchemy. But with the splitting-off of alchemy into an exoteric "alchemy of matter"—i.e., normal chemistry and physics—the psychic residuum made it possible for an intuitive perception of the existence of the unconscious psyche to arise.

While Benz draws very little attention to this aspect of his account of the electrical theology, his detailed and conscientious exposition of the thoughts of the electrical theologians provides important clues leading toward an understanding of this important historical transformation of consciousness.

### The Electrical Unconscious

An examination of how the electrical theologians conceived of the role of that primordial light, electricity, reveals how close they were able to come to the beginnings of a psychology of the unconscious. For the electrical theologians, there is not only a "conscious and rational" life, but a "sensory, growth-like, sensitive" life. This "sensuous soul" (the unconscious) is electric, and is nourished by the "electrical fire" (read "libido" or "psychic energy"). Man is a being "involved in all levels of life—the material, vegetable, animal." His soul "has deep roots in pre-human realms." Man's spiritual life is rooted "in the organic structures and physico-chemical processes of his bodily existence." Not only is the "animalistic" soul the "nourishment of the rational soul," but the rational soul "needs this substratum in order to function." The two should generate thoughts that stand in opposition to one another. (One is reminded of Goethe's "Two souls, alas, do dwell within my breast.")<sup>17</sup> And in a clear prefiguration of Jung's conceptions of the effects of complexes and archetypes, Oetinger says that the images that arise out of the "animalistic soul" must be overcome by conscious reflection or meditation, lest "you [be] forced to act according to the needs of the body." The texts that Benz examines seem not only to refer to the fact of a conscious and unconscious mind, but to ad-

dress the more dynamic functions of archetypal possession, the compensatory function of the unconscious, and the drive toward individuation as freedom from the opposites.

### Apocatastasis

Benz emphasizes the apocatastatic themes of revelation, restitution, and final judgment as interpreted through Oetinger's electrical theology. Oetinger believes that the electrical theologians are rediscovering the magic of the ancients—that science and technology are mere reconstructions of this ancient wisdom. The electrical theologians are therefore bringing about the restitution of the central magic and meaning of the world at the end of time. In fact, Oetinger uses a line of thought very similar to the one we have used here in discussing the prefigurative aspects of alchemy with regard to the development of microphysics and a psychology of the unconscious. Unfortunately, Oetinger concretizes this "lost wisdom," as though it once existed in some rational form when, in fact, it existed as sets of symbols, images, and metaphors, many of which still remain to be understood—just as was the case with the ostensibly bizarre imagery of alchemy.<sup>18</sup> The recovery of this lost wisdom will shortly precede the return of the Kingdom of God.

Apocatastatic and apocalyptic ideas associated with science should not be viewed as a peculiarity of an obscure theology of the 18th century. What was then discussed in open terms now appears to unconsciously order the content and structure of modern scientific speculation. "Closure" theories of the cosmos abound: we hear of neutron-proton ratios and their relationship to the eventual collapse of the universe; superstring theory and the new Theories of Everything are clearly apocatastatic. Dark Matter is envisioned as a godlike threatening aspect of the unknown universe; an eternally menacing "Nemesis planet" that directs cosmic debris toward earth is hypothesized. Other technologies, such as the undersea robot, "Alvin," for deep-sea scanning, and LandSat analyses of the earth's surface and what lies immediately beneath it, seem designed to effect—at least in the imagery of our expectations—a revelation of all things at the end of time.<sup>19</sup>

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