

## Introduction

This Element introduces its readers to the fact that new religious movements (henceforth NRMs) include varied and complex conceptualizations of science in their beliefs. It also introduces readers to scholars' conversations concerning this fact. Section 1 elaborates on five NRMs that, in different ways, include significant reference to science in their respective teachings. These movements are Scientology (which includes the doctrine and practice called Dianetics), the Raëlians, Falun Gong, Stella Azzurra (a Santo Daime group), and the Satanist organization Bambini di Satana.

Section 1 begins by presenting case studies to underscore that any NRM's conceptualization of science is invariably given, and should therefore be understood, within the context of its doctrines, including their modifications over time. As important as the discussion of science may be for a given NRM, extracting and extrapolating it from the NRM's worldview would be an oversimplification. Ultimately, the focus is here on NRMs' theology, not on theories developed by specialists in the philosophy of science that can be distilled without losing their gist. Arguably, members are drawn to a movement because of its ability as a whole to make sense of their existential experience. This Element aims to impart a deep understanding of the movements in question from the (academic) viewpoint of a nonmember. Arguably, there always will be a hiatus between a believer's self-perception (the emic perspective) and any scholarly reconstruction (the etic perspective), no matter how extensive and neutral. However, a good academic analysis should still strive for comprehensiveness. Therefore, a "bottom-up," holistic approach seemingly makes for a better starting point. That being said, I shall go back to the emic/etic distinction toward the end of the Element and problematize it.

The presentation of each case study is divided into two subsections. The first one narratively introduces the movement's history and beliefs, including its references to science, while the second one relies on scholarly literature (including my own) to analyze the movement's conceptualization of science and draw comparisons with the other movements discussed. I focus on NRMs' texts with emphasis on those of their respective founders. However, I do include references to, and reflection on, conceptualizations of science offered by NRM members detected through ethnographic work.

I have yet to define the term science. In a broad sense, science is any kind of structured knowledge, yet readers are likely to have intuitively associated the term with fields like biology, physics, or medicine – what one may call the natural sciences. There is a wide spectrum of interpretations of what, if anything, sets natural science apart from other fields. Briefly put, on one end of the spectrum one finds realist definitions according to which there is a reality out there

independent of us, thus an objective description of the world is possible; empirical, mathematical, peer-checked methods allow us to approach a correct description of that “reality.” On the other end of the spectrum, one finds constructivist approaches according to which natural science, as well as the very “reality” it refers to, is produced socially, not unlike other fields. In between, one finds a position like Thomas Kuhn’s (1922–96), according to which scientists do concern themselves with reality, yet their selection of specific portions of reality, as well as of the very concepts and methods through which they study it, may be subject to peer pressures and subjective factors; however, Kuhn is inclined to believe that “objective reality” tends to prevail in the long run and that a “paradigm” of research may be superseded and annulled when evidence contrary to it becomes too large to ignore (Kuhn 1962). A detailed discussion of the myriad philosophical interpretations of science falls beyond the scope of this Element. I am nevertheless aware of the complexity and the challenges represented by such debates.

I began my research on NRMs also being aware that one should first capture what they claim before projecting any other vision on them. Therefore, I have opted for some stipulations. First, I offer here a study of science as the NRMs under examination discuss it, adopting what one may call a nominalist approach. In other words, I focus on NRMs in whose texts and teachings the terms “science” and “scientific” feature prominently: it is such usage that I primarily reconstruct. As we will see, the semantic spectrum covered by such terms as used in the different movements usually does include science meant as the study of the natural world, but it also surpasses it. Quite often, the discussion of science includes reference to technology as well: the practical application of science through artifacts that extend and enhance humans’ knowledge of, and control over, the world.

I integrate this approach with a further stipulation, extending the analysis to the discussion of terms such as physics, biology, chemistry, and medicine, as well as of words and concepts that one would commonsensically associate with them, such as atom, cell, and healing.

In fact, even a nominalist and commonsense analysis inevitably carries within itself certain meanings and undertones. However, I am also convinced that the very bottom-up, general approach I adopt can mitigate my biases, thus providing the reader with a reasonable and respectful entry point into the belief systems discussed.

In the interest of transparency, I must add that, in other contexts, I rely on a realist concept of science to make prescriptive statements and draw critical assessments. In fact, in different publications I even have defined some NRM teachings as pseudoscientific. This may elicit irritation on behalf of colleagues in the social sciences who, with a few exceptions, strive to be as neutral as possible. Some contend that any criticism leveled at NRMs ends up fueling the

ideological and practical persecutions that such movements may undergo. This is not my perspective. I also belong to a junior cohort of NRM scholars that is admittedly less directly involved in the cult wars of the twentieth century; that is, the often vehement debates over the role of NRM experts in regard to those very NRMs' social perceptions and institutional handling. Additionally, I regard NRM teachings as proposed models for the explanation of certain phenomena, as well as methods for the achievement of certain results that, as such, may well be respectfully scrutinized and evaluated in reference to criteria such as logical consistency and effectiveness. At the same time, I do see why other scholars may disagree, and strongly at that. Moreover, I am familiar with the challenge of coming up with a clear-cut and universal definition of pseudoscience (cf. Pigliucci & Boudry 2013).

That being said, all such discussions exceed the scope of this Element. To be sure, I do mention criticism leveled at the ways in which different NRMs conceptualize science, and I do resort to the term pseudoscientific in order to qualify them. This, however, is not done while offering my own perspective, but rather through referencing stances represented by various critics of NRMs. This discussion warrants reconstruction considering that the disapproval of certain NRMs, or of some of their beliefs, often crucially impacts the very way in which leaders and members of such NRMs perceive and present themselves.

Defining an NRM is challenging, too. Prominent scholars are divided over the criteria to adopt to define them, and advance different suggestions resulting from their respective backgrounds. For instance, religion historian J. G. Melton proposed that new religions, rather than sharing common attributes, are those that exist in a contested space because they are pushed to the fringes of culture by dominant voices in the religious culture and in the secular one (Melton 2004). Sociologist Eileen Barker emphasized the “newness” of NRMs in terms of beliefs, practices, organization, location, and membership; newness of membership, she underlined, is marked by special behavior, since converts tend to be more enthusiastic and vulnerable than members born into a religion. Additionally, NRMs are likely to undergo rapid and radical change, especially as a result of the founder's death. Barker recognized as well, however, that one religion's “newness” can be appreciated by way of comparison with other religions and is therefore a relative concept, and that the question “when does a new religion stop being new?” remains open (Barker 2004). Sociologist David G. Bromley defined new religious groups in reference to their alignment – in other words, NRMs' perceived low congruence with dominant culture and institutions results in constant disputes and negotiations, including over their very definition as religions. Bromley recognized, however, that movements thus described are placed on a spectrum (Bromley 2004). Independent scholar of the sociology of religion Thomas Robbins suggested distinguishing

“new religions” and “alternative religions.” The former are those that emerged recently as symbolically and organizationally independent, the latter are in tension with their sociocultural environment. While new religions can be alternative and vice versa, there is no perfect correlation between the two categories (Robbins 2004). For this Element I have adopted a pragmatic approach. On the one hand, I thought it reasonable to assume familiarity with NRMs and the debates surrounding their definition on behalf of my reader. On the other hand, I once again opted for a nominalist approach. One may say that NRMs ultimately are what NRM scholars study. The movements discussed here are widely recognized by the scholarly community, having been tackled in academic literature whose amount is, in some cases, staggering. Although *Bambini di Satana* appears to be an exception, Satanism, of which they are an expression, is widely explored by scholars.

Other factors make the selection of the NRMs discussed here significant. To begin with, while inevitably relying, and drawing, on scholarly literature, for each of them I conducted my own research on primary sources. Secondly, they represent NRMs’ diversity in terms of geographical and cultural origin, diffusion, development, and structure. Dianetics and Scientology originated in the United States in the 1950s. The Church of Scientology is currently led by the founder’s first successor, and it has spread globally, claiming its membership to be in the millions – while critics guess tens of thousands (Introvigne 2017). The Raëlian Movement originated in France in the early 1970s and, at the moment of writing, it is led by its founder. It has spread to other countries, including Canada (in particular, Québec), Japan (where the founder currently resides), and Burkina Faso. In a 2020 interview, Raëlian leader and spokesperson Dr. Brigitte Boisselier (more on her later), when asked about the movement’s followers, replied, “we’re probably reaching 100,000 now” (Shamir 2020). Falun Gong emerged in the early 1980s in China. Its founder left the country in 1996 and is currently a US permanent resident. Membership estimates in China vary between 2.1 and 2.3 million according to the Chinese government and 70–80 million according to the movement, to which one should add 20 million outside of China, again according to the movement (Penny 2012: 7). Stella Azzurra is an Italian branch of the Brazilian religion Santo Daime, whose diffusion is global yet contained, counting some 20,000 practitioners worldwide, 4,000–6,000 of which live outside Brazil (Dawson 2013: 5, 203 n. 21); the Italian organization, formally established in 2007, counts around 70 active members. Finally, *Bambini di Satana* was an Italian Satanist organization founded in 1982. At the apex of diffusion, it counted a few hundred members. It is now virtually defunct following the death of its founder in 2021.

Section 2 maps significant scholarly literature on NRMs and science. Sociologist William Sims Bainbridge published a seminal paper in 1993, encouraging colleagues to study the topic. Approximately twenty years later, academic engagement with NRMs and science blossomed. In 2010, Benjamin E. Zeller published *Prophets and Protons*, offering a perceptive analysis of three NRMs that utilized science in their worldview, as well as an abstract model for the science–religion relationship based on such analysis. In 2011, he edited a special issue of *Nova Religio*, the leading journal on the academic study of new religions, on NRMs and science. He reiterated that “scholars of new religious movements need to pay more attention to the ways adherents, leaders and founders of new religions use the idea of science” (Zeller 2011: 5); the issue carried four articles. The same year, James R. Lewis and Olav Hammer published their coedited, monumental *Handbook of Religion and the Authority of Science*, containing thirty-two essays, written by scholars with different academic backgrounds and methodologies, mostly including contributions on NRMs (Lewis & Hammer 2011).

Other articles have been published in different scholarly journals, and experts often reflect on the role of science in studies focusing on other aspects of the NRMs they specialize in. For the reconstruction of the scholarly conversation on NRMs and science, I selected the most significant or influential voices. I examine essays and monographs that identify general trends in the history of spirituality and new religions, or that advance typologies for the study of the relation between NRMs and science.

In Section 3, I wrap up the discussion, advancing proposals for future work on NRMs and science.

## 1 Five Case Studies

In 1950, the US pulp fiction writer Lafayette Ronald Hubbard (1911–86) published an article in a sci-fi magazine (Hubbard 1950a) as well as a voluminous book (Hubbard 1950b), that, drawing upon ideas he had been elaborating for more than a decade, introduced Dianetics, a self-improvement method presented as a “modern science of mental health.” (The amount of scholarly literature and primary sources related to Hubbard, Dianetics, and Scientology is staggering. I elaborate here on investigations and reflections published in Bigliardi 2016. For a thorough scholarly reconstruction of the movement’s history, see Urban 2011. See also Donald A. Westbrook’s *Element on Scientology studies* in this series [Westbrook 2022a] and his monograph *Among the Scientologists* [Westbrook 2019].)

According to Hubbard, mnemonic traces of traumatic events, called engrams, encumber and obfuscate the human mind. It is, however, possible to identify and

eliminate them through a procedure called auditing, leading to a dramatic improvement of one's mental and physical potential.

Later, Hubbard conceptualized the human soul as an entity, called thetan, that goes through successive incarnations but that also can forget its own potential for freedom and creativity. According to Hubbard, the history of the thetans, as verified through auditing, goes back seventy-six trillion years (Hubbard 2007b [1952]). Hubbard incorporated Dianetics in a teaching that he called Scientology, which offered to its followers, through a long and complex path called "Bridge to Total Freedom," to advance toward "higher states," including OT (Operating Thetan) levels. Individuals who reach the highest levels are said to have control over matter, energy, space, and time.

From a historical viewpoint, the Dianetics movement occurred from 1950 until the incorporation of the first Scientology churches in 1953. However, Dianetics and Scientology are separate subjects – the former (Hubbard's mental health system) being presented as the substudy and forerunner of the latter (Hubbard's applied religious philosophy). However, the lines between the two are at times blurred; most notably, the language and techniques of Dianetics show up in the OT levels.

Hubbard was initially looking for approval from the American Medical Association and the American Psychological Association, to which he unsuccessfully presented his theories. In fact, once such theories gained visibility they were deemed pseudoscientific and pseudomedical by the establishment. Hubbard started attacking psychology and psychiatry as unscientific and abusive. (It should be recalled that psychiatry back then resorted to practices such as lobotomy and electroshock therapy.) It is not unusual for Scientology to use anti-psychiatry campaigns and materials to attract potential affiliates. The museum *Psychiatry: An Industry of Death* was opened in Los Angeles in 2005, operated by Scientology's organization Citizens Commission on Human Rights (CCHR). The same name is used for similar touring exhibitions in the United States and internationally, and serves as the title of a documentary (Citizens Commission on Human Rights 2006). CCHR was cofounded in 1969 with Thomas Szasz (1920–2012), a psychiatrist highly critical of his own field, who in fact declared he was an atheist and not affiliated with Scientology (Westbrook 2017).

In the mid-1950s, Hubbard presented a device called the Electropsychometer, or E-Meter, as essential for auditing, a procedure that is usually (but not exclusively) performed by a subject seeking spiritual improvement, a preclear, and an auditor, who supervises and guides the procedure. Except for some levels of the "Bridge to Total Freedom" that do not routinely use the E-Meter, the device plays a crucial role in Scientology.

Hubbard emphasized that the E-Meter is irreplaceable and infallible. He wrote that “the E-Meter utterly dwarfs such inventions as that of the microscope” (Hubbard 1989 [1982]: 6). It is reported that Hubbard himself underwent auditing systematically, solo or with an auditor, keeping detailed records for years (Corydon & Hubbard 1987: 372; Miller 1987: 250).

In fact, the usage of a device for Dianetics had been proposed as early as 1951 by chiropractor and writer Volney G. Mathison (1897–1965), who belonged to Hubbard’s circle. Hubbard initially resisted it, also claiming that it depersonalized the sessions, after Mathison’s refusal to turn over the device’s patent rights to him. However, he finally came up with his own version (1955) that was later patented (1966). There have been eight versions of the device so far, all redesigned and repatented. The latest one, called Mark VIII Ultra, was released in November 2013.

The E-Meter is a battery-powered machine composed of a principal box connected through cables to two electrodes in the form of metal cans. Once it is switched on, it sends a small electrical flow through the person who holds the cans. Variations in the flow result in the movements of a needle on the device’s display.

Hubbard explained his views by using both a rich nomenclature of his own invention and terms and concepts of physics employed in an unusual way. For instance, he claimed that thought has a “mass” and a “resistance”; he wrote statements like the following: “The resistance of a dead female body is 5,000 ohms and of a dead male body, 12,500 ohms” (Hubbard 1983 [1966]: 3).

In standard physical terms, an E-Meter is based on a Wheatstone bridge, that is, a circuit that measures electrical resistance. This terminology is accepted by Hubbard; indeed, he and other Scientologists patented the E-Meter not by referring to it as a tool used for Dianetics/Scientology purposes but as a device that measures and indicates changes in resistance of a living body.<sup>1</sup> This, however, is integrated in Scientology teachings through Hubbard’s own parlance and concepts, who asserted that the E-Meter reacts to electrical impulses generated by thought.

In fact, the name E-Meter notwithstanding, an auditor does not measure values but interprets the needle’s movements as a consequence of questions regarding past incidents the preclear is asked about. The movement that is perhaps the most well known is the “floating needle,” or F/N, described as “a

<sup>1</sup> Some examples: Patent US 3290589, December 6, 1966 (<https://patents.google.com/patent/US3290589>); Patent US 4459995, July 17, 1984 (<https://patents.google.com/patent/US4459995>); Patent US 4578635, March 25, 1986 (<https://patents.google.com/patent/US4578635>); Patent US 4702259, October 27, 1987 (<https://patents.google.com/patent/US4702259>).

rhythmic sweep of the needle on an E-Meter dial at a slow, even pace, back and forth, back and forth (. . .) mean[ing] that the charge on a subject being audited has dissipated, and [being] one of the indications of a process being complete” (Glossary of Scientology & Dianetics Terms 2000–2015). Hubbard’s writings prescribe the procedure in great detail, including meticulous descriptions of the needle’s possible behavior. Auditors are required to undergo intensive training in order to operate the device.

In a 1952 lecture, Hubbard compared the E-Meter and a polygraph: “The difference between this machine and a police department machine is elementary: a police department machine is just more of it. A police department machine measures respiration, blood pressure, [and] electronic impulse. [The E-Meter] measures solely the electrical resistance of the body” (Hubbard 2007a [1952]: 187). To this, he added: “But mind you, this machine has to be cared for. You have to take good care of the machine. And if you get one of your own, for heaven’s sakes, don’t let anybody else use it. It’ll get so temperamental you won’t even be able to talk to it” (Hubbard 2007a [1952]: 238). (This passage may give the impression that Scientologists aren’t allowed to share meters. In practice, however, Scientologists in the church do sometimes borrow meters or share them for “co-auditing.” There is no prohibition on sharing, as long as the member is in good standing [Westbrook 2022b, pers. comm.] )

*E-Meter Essentials* (Hubbard 2006 [1961]) emphasizes the device’s irreplaceability. Hubbard wrote: “there is no known way to clear anyone without using a meter,” and “there is no guarantee that scrap or nonstandard meter will behave properly.” He stressed that the device requires constant practice: “The only way known to learn to use an E-Meter is use one, handle one, practice with one. Skill in meter use depends upon familiarizing oneself with the actual meter.” In the same vein, Hubbard added: “Get familiar with the meter by holding it, watching it, turning it on and off. Touch it. Reach and withdraw from it. Play catch with it. Don’t just read books about it.” The E-Meter is described as infallible: “The person who says the meter is not a precision instrument is either unfamiliar with one or has something to hide. The auditor’s questions can be off. The meter never is” (Hubbard 2006 [1961]: 9). The device is even said to “know” more than its users. “The meter registers *before* the preclear becomes *conscious* of the datum. It is therefore a pre-conscious meter” (Hubbard 2006 [1961]: 10, original emphasis). Moreover, Hubbard added, “[The E-meter] ‘knows’ more about the preclear than the preclear. It is reading created masses he is withholding himself from. The preclear won’t confront all he is creating. Hence the omniscience of the meter” (Hubbard 2006 [1961]: 22).

Technology, or tech, is an important term in Scientology parlance. Its meaning encompasses Hubbard’s discoveries and teaching, the vocabulary he uses to



explain them, and their application. In other words, technology means Scientology's doctrine. As expressed in a 1965 document entitled "Keep Scientology Working," still used as an introduction to auditor training courses and displayed in the rooms of Scientology organizations, Hubbard was insistent on the preservation of standard tech, that is, Scientology's doctrines as established by him (Hubbard 1965). This function is currently fulfilled by the Religious Technology Center, directly run by Scientology's leader David Miscavige (b. 1960).

One important point is that Hubbard suggested that the truth of Scientology should be subjectively ascertained and confirmed. As he declared: "Nothing in Scientology is true for you unless you have observed it and it is true according to your observation" (Hubbard 1961).

In tune with the postwar climate, Hubbard also developed an interest in, and expressed concern about, radiation and its effects, publishing a book about the subject (Hubbard 1957). In 1958, the US Food and Drug Administration (FDA) confiscated and destroyed 21,000 Dianazene tablets, a supplement that, according to Hubbard, protected against radiation. In 1963, the Founding Church of Scientology in Washington, DC, was raided by US marshals acting on an FDA warrant and hundreds of E-Meters were confiscated. The FDA accused Scientology of falsely claiming that the device had therapeutic properties, both for physical and mental illnesses (Urban 2011: 62–3). Court battles dragged on for almost a decade. Finally, District Court Judge Gerhard Alden Gesell (1910–93), while denying medical validity to the device (and recognizing that it had been represented as a medical device), ordered the property to be returned to the Church and allowed its use in religious counseling. The Judge wrote "Here is a pseudo-science that has been adopted and adapted for religious purposes." From that time on, he ordered that all E-Meters

should bear a prominent, clearly visible notice warning that any person using it for auditing or counseling of any kind is forbidden by law to represent that there is any medical or scientific basis for believing or asserting that the device is useful in the diagnosis, treatment or prevention of any disease. It should be noted in the warning that the device has been condemned by a United States District Court for misrepresentation and misbranding under the Food and Drug laws, that use is permitted only as part of religious activity, and that the E-meter is not medically or scientifically capable of improving the health or bodily functions of anyone.

The Judge added that "each user, purchaser, and distributee of the E-meter shall sign a written statement that he has read such warning and understands its contents and such statements shall be preserved." A warning notice similar to

the E-Meter's one should feature in all literature referring to the E-Meter and auditing.<sup>2</sup>

Currently, Scientology uses this description:

It is a religious artifact used as a spiritual guide in auditing. It is for use only by a Scientology minister or a Scientology minister-in-training to help the preclear locate and confront areas of spiritual upset. In itself, the E-Meter does nothing. It is an electronic instrument that measures mental state and change of state in individuals and assists the precision and speed of auditing. The E-Meter is not intended or effective for the diagnosis, treatment or prevention of any disease. (Church of Scientology International 2022a)<sup>3</sup>

Anti-Scientology authors and activists, including ex-members, are highly critical of the E-Meter, making different arguments against it. For example, although the E-Meter definitely detects a resistance, such resistance can hardly be identified with that created by the “mass” of “thoughts” (Cooper 1971; Jacobsen 2009). The resistance of the electric flow is heavily influenced by the strength with which the cans are held, the extension of skin in contact with them, sweat's salinity, and so on (Schafmeister, undated). Hubbard was not consistent in his descriptions of the E-Meter (Ortega 2014). The E-Meter is not worth its price (e.g., US\$5,000–6,000 for a Mark VIII model), and the movement encourages auditors to own two units since one may break down (Jacobsen 2009; Ortega 2014). There also exist small groups of independent, or “Free Zone,” Scientologists, who also make use of the E-Meter or their own variations, outside of church control (Thomas 2021).

Despite occasional suggestions that he was a “nuclear physicist” – for instance, on the dust jacket of the original edition of *All About Radiation* (Hubbard 1957) – Hubbard did not have academic or scientific credentials. He did try studying engineering at George Washington University, but he dropped after two years (1930–32). His grades in physics were particularly low. In the 1950s, he also used the title “doctor” that he had received from a diploma mill. However, in 1966 he issued a statement in which he renounced it, protesting against all those who, endowed with PhDs, had harmed humanity (Miller 1987: 255).

<sup>2</sup> See *United States of America v. Founding Church of Scientology et al.*, 333 F. Supp. 357 (D.D.C. 1971), §§ 363–5: <https://law.justia.com/cases/federal/district-courts/FSupp/333/357/1606969/>.

<sup>3</sup> It is worth adding that the label on the current model (full name: Hubbard Professional Mark Ultra VIII Electrometer) reads: “This electrometer is a religious artifact intended only for use by Scientology ministers, ministers-in-training and other qualified parishioners, as a guide in confessionals and counseling to help locate the source of spiritual travail. By itself this meter does nothing, and is neither medically or scientifically useful for the diagnosis, treatment or prevention of disease. *Ownership or use of this meter by anyone not in good standing with the Church of Scientology is prohibited*” (Westbrook 2016, pers. comm.; emphasis added).