

## ESSAY REVIEW

### Psychical Physics: On the Borderland of Physics and Psychic Phenomena

**Physics and Psychics: The Occult and the Sciences in Modern Britain** by Richard Noakes. Cambridge University Press, 2019. 403 pp. ISBN 978-1-107-18854-9.

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In an address presented on August 20, 1891, at the Sixty-First Meeting of the British Association for the Advancement of Science, the President of the Association's Section of Mathematics and Physical Science discussed various scientific developments. The speaker started with brief mentions of Michael Faraday's centenary, and the death of Wilhelm Weber, and then went on to detailed discussions of a binary system of stars, the discovery of ways to achieve color photography, and the importance of professional systematic physics research leaving behind amateur efforts. Then he changed directions and said he was going to discuss a "topic which is as yet beyond the pale of scientific orthodoxy" (p. 551). The topic, the study of psychic phenomena, was called by the speaker the "borderland of physics and psychology," an area "bounded on the north by psychology, on the south by physics, on the east by physiology, and on the west by pathology and medicine" (p. 553).

"I have spoken of the apparently direct action of mind on mind, and of a possible action of mind on matter. But the whole region is unexplored territory . . . I care not what the end may be. I do care that *inquiry shall be conducted by us*" (p. 555, my italics).

The speaker was English physicist Oliver J. Lodge (1892; see Figure 1), who by that time was well-known for his interest and work in psychical research.<sup>1</sup> The “us” in the last quote above was a reference to the community of physicists. Such interest in the topic by some physicists, of which Lodge was a main player, is the subject of the book reviewed here.

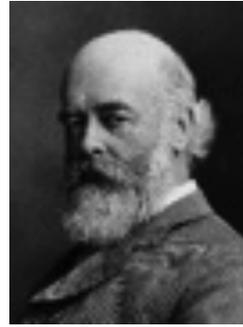


Figure 1. Oliver J. Lodge

Richard Noakes, author of *Physics and Psychics: The Occult and the Sciences in Modern Britain*, is an Associate Professor of the History of Science and Technology at the University of Exeter. For years he has been working on the topics covered in *Physics and Psychics*, writing about subjects such as the reasons behind the interest of physicists in psychic phenomena (Noakes, 2008), and how particular individuals combined physics and psychical research in their actual work (Noakes, 2004). The book reviewed here, an important contribution to the historiography of psychical research, includes this material and much more.

Although the interaction between physics and psychic phenomena has been discussed before by others (e.g., Oppenheim, 1985; Wynne, 1979), this is the first detailed study of what Noakes calls “physical–psychical scientists”, or the community of physicists and other physical scientists interested in the phenomena of Spiritualism and psychical research. More than previous writers, Noakes, who focuses on British developments roughly around 1870–1930, argues that these individuals were more interested in the topic than has been previously realized, or emphasized.

In his introduction Noakes makes it clear that the historical discourse has changed, from labelling these topics pseudo-science, to viewing them as alternative ways of knowing that were a reflection of the needs of the times and of attempts to redefine science. Such ideas are conceptually related to work published in the history of science literature about the positive influence of magic, and generally occult beliefs and practices, on the development of science and thinking about human beings.<sup>2</sup> Examples of specific claims of influences presented over the years include the nurturing effects of Platonic, neo-Platonic, and Hermetic teachings on Renaissance science (Debus, 1978), and of

mesmeric phenomena, nineteenth-century psychiatry, and psychology (Ellenberger, 1970). Also related to Noakes' approach is the work of many historians who have questioned the universal application of long-held ideas about modern science. This includes the secularization of the soul and the banishment of magic (Josephson-Storm, 2017), as well as what many still believe was the perennial conflict between science and religion (Lightman, 2019).

Noakes refers to historical work seeing “mesmerism, spiritualism and psychical research . . . as new forms of psychology or sciences of the mind, . . . [that] played significant roles in the nineteenth-century debates about the proper nature and scope of psychology” (p. 11). Some examples are the work of Adam Crabtree (1993), Andreas Sommer (2013), and Régina Plas (2000). In fact, the latter affirms in her study of French developments that various attempts to understand thought-transference supported the existence of the concept of the unconscious mind.

The author also reminds us that some individuals within Spiritualism and psychical research attempted to widen the scope of scientific naturalism to explain the world “by showing how scientific methods could . . . challenge what they perceived to be scientific naturalism's ‘materialistic’ philosophy, which proclaimed that everything in the cosmos, including life, mind, and spirit, could be reduced to matter and force” (p. 11). However, we are also reminded that not all physicists were strictly materialists. In fact, James Clerk Maxwell and others were “devout Christians who maintained that professionalized physics could fulfill the religious purposes that the sciences had carried for centuries: to evidence a cosmos designed and ruled by divine agency” (p. 17). Some even argued that some ideas in physics supported religious ideas, as did Balfour Stewart and Peter Guthrie Tait (Figure 2) in their controversial and widely read book *The Unseen Universe or Physical Speculations on a Future State* (1875), a work discussed later by Noakes. Stewart and Tait argued for the existence of a universe that could not be perceived by our senses but was connected with the known universe, and for the lack of incompatibility between religion and science. They wrote in the second edition of their book:



Figure 2. Balfour Stewart (left) and Peter Guthrie Tait.

If in the course of our discussion we are to some extent constructors, and find analogies in nature which seem to us to throw light upon the doctrines of Christianity, yet in the main our object is rather to break down unfounded objections than to construct apologetic arguments . . . The Bishop of Manchester has very clearly described our position by stating that [*from a purely physical point of view . . .*] we “contend for the possibility of immortality and of a personal God.” (Stewart & Tait, 1875, p. vii)

*Physics and Psychics* has six chapters covering a variety of individuals and conceptual issues. It starts with one covering a variety of concepts of force from physics, but also from mesmerism and Spiritualism. Writing about animal magnetism, a universal force popularized by Franz Anton Mesmer and many others, the author states:

By the late eighteenth century, physical sciences divided the material cosmos into ponderable matter and a host of forces and imponderable (weightless) and invisible fluids such as gravity, mineral magnetism, frictional electricity and heat . . . The apparent discovery of another invisible force or imponderable fluid fitted well within programmes of enquiry in these sciences. The ideas of a universal force or fluid linking the microcosm of animate and inanimate bodies on earth to the macrocosm of celestial bodies and of the therapeutic benefits arising from the manipulation of such a fluid made sense within contemporary scientific and medical discourses. (p. 25)

Such discourses, as seen in a classic of mesmeric historiography, Robert Darnton’s *Mesmerism and the End of the Enlightenment in France* (1968), included those developed at a time of interest in the wonders of electricity and in other physical forces. General interest in these ideas helped the popular reception of the mesmeric movement. In Darnton’s words, consistent with Noakes’: “Frenchmen could read descriptions of fluids very like Mesmer’s under the articles ‘fire’ and ‘electricity’ in the *Encyclopédie* . . . In fact, there were enough fluids, sponsored by enough philosophers, to make any eighteenth-century reader’s head swim.” (p. 11)

Soon after, magnetic ideas, sometimes through their transformation into the Od force, affected Spiritualism by providing physical

explanations for phenomena, particularly ideas of nervous-vital forces emanating from the medium during séances. Some early examples were applied to explain table turning, as seen in the views of French Count Agénor de Gasparin (1854). He argued for the existence of a fluidic force emanating from the sitters that set tables in movement, a force “similar to terrestrial magnetism, light, heat, electricity . . . under the . . . provisional name of hematonervous fluid” (Vol. 2, p. 407).

Those interested in these unorthodox concepts of force will find much of interest in this chapter and in the book in general. However, even if this is a recurring topic, the purpose of the book is not a history of these specific ideas, but instead of the general ideas and work of British “physical–psychical scientists”, which included much about these mysterious emanations from the bodies of mediums and others.

The British spiritualistic literature had many examples of speculations about forces. One was an article by electrician Desmond G. FitzGerald, who wrote about the basis of physical phenomena in séances:

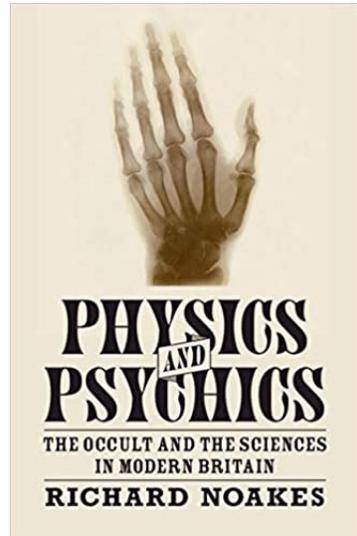
The moment we have satisfied ourselves that this energy, or ‘power,’ is derived or ‘drawn’ from the medium and sitters, it becomes from our point of view almost certain that something material—ponderable matter, or ‘psychical matter’—in which potential energy has been previously stored up by the separation of molecules, and through which work may be done by the conversion of energy as those fall together, is actually taken from them by the manifesting agent. (Fitzgerald, 1878, p. 251)

A general history of this topic would include the work of many other individuals who did not have a particular physics background, some of whom are mentioned by Noakes. Some of those individuals and publications that come to mind are French physician Hippolyte Baraduc’s *L’Ame Humaine* (1896), English attorney Edward W. Cox’s *What Am I?* (1874), German philosopher Eduard von Hartmann’s *Spiritism* (1885), and American abolitionist writer Edward C. Rogers’ *Philosophy of Mysterious Agents* (1853). These forces, German philosopher Carl du Prel believed, “do not wait for their discovery and baptism to become active; they have been operating for a long time before and give rise to phenomena of unknown physics . . .” (du Prel, 1896, p. 447).<sup>3</sup>

As chronicled by Noakes, such unknown physics developed in the context of more orthodox but still not fully understood topics of nineteenth-century British physics. These were important times when influential physical concepts were developed from previous ideas, such as the all-pervasive ether and its implications for the transmission of signals in space, not to mention its metaphysical dimensions (Cantor & Hodge, 1981). Another important conceptual development were ideas of electromagnetism, and the principle of conservation of energy (Hunt, 1991) which, in addition

to having an impact on conceptions of energy, matter, and signal transmission, brought together theory and practice, as seen in many practical applications involving electricity (including telegraphy), and the development of new engines, a process described by Morus (2005).

In the third chapter Noakes presents the community of “physical–psychical scientists,” or those who were interested by training in physical aspects of psychic phenomena, without necessarily reducing them to materialistic processes. Because the professions were not strictly defined as they are today, this includes individuals who did not train exclusively in physics, but also those with a background in astronomy, engineering, chemistry, or telegraphy. A long table (pp. 86–92) presents the names and other details of many of these individuals affiliated with the Society for Psychical Research (SPR), including non-British persons (1882–ca 1940), while another table lists non-SPR “physical–psychical scientists” for the same period (pp. 95–103). Among the better-known British persons in the first table are William F. Barrett, William Crookes, Edmund E. Fournier d’Albe, Oliver J. Lodge, Eleanor M. Sidgwick, Balfour Stewart, John William Strutt, and George N. M. Tyrrell (Figure 3), but there are also many others not particularly known for their psychic interests, at least in terms of research and publications (e.g., John Cox, John Herschel, William Ramsay, Joseph J. Thomson, Charles J. Young).





**Figure 3.** William F. Barrett, William Crookes, Eleanor M. Sidgwick, and John William Strutt (left to right).

Some non-SPR foreign individuals mentioned are Pierre Curie, Fritz Grünewald, Giovanni Battista Ermacora, Amos E. Dolbear, William Gregory, Robert Hare, Dimitri I. Mendeleev, and Francesco Porro.

Interestingly, and mentioned by Noakes (p. 77), it was physicist William F. Barrett, who sent a letter out to several individuals in December 1881 inviting them for a meeting to be held in January. This meeting, to “consider the advisability of having a select Central Society organised, under some such name as the London Psychical Society”, led to the founding of the SPR (Barrett, 1924, p. 395).

Like others with no physics training, for these individuals psychic phenomena seemed to express or fulfill needs of a philosophical, religious, and scientific nature. More specifically, and related to their interest in physical processes, was the “belief in the possibility that psychical phenomena represented a possible extension of the knowledge and practice of the physical sciences” (p. 135).

The actual work and ideas of the individuals studied in this book are the subject of Chapters 3–5. This includes actual physical theories, among them ideas of brain waves to account for telepathy, ideas of a psychic force in mediumship, and various other topics involving methodology and the concept of scientific expertise. Regarding the ideas of some of these individuals Noakes writes:

Most of them were acutely aware, not least from critics near and far, of the risks of applying physical principles, analogies, theories and explanations to psychical puzzles. Despite their increasing caution about the psychical applications of physical theories, they never gave up the hope that some theories and ideas in physics might constitute the basis for more satisfactory interpretations of psychi-

cal phenomena and this partly depended on new understandings of the physics of the ether, energy and matter as they unfolded in the early 1900s. (pp. 183–184)

Finally, in Chapter 6 the author comments on the lack of success of physical approaches to psychic phenomena, and how the new generation continued speculating. Some of the discussion focuses on the writings of Hereward Carrington, who, without formal training in physics or engineering, fomented public interest in the physical detection of psychic forces and in radio models of telepathy (pp. 317–319). Like Lodge, Carrington was a proponent of laboratory investigations of psychic phenomena. In his book, *Laboratory Investigations into Psychic Phenomena* (n.d.) he gave much attention to concepts of force and to past attempts to instrumentally detect those hypothetical forces. In his view “a whole world of forces and curious phenomena is thrown open to the impartial inquirer calling for exact observation and scientific interpretation” (Carrington, 1917, p. 20).

This chapter also extends the discussion to later individuals and ideas published up to the 1930s. For example, Noakes comments on the wide interest in speculations about wireless communications both in Britain as well as in the United States. While he is clear that the “physical–psychical scientists” did not succeed in finding physical correlates of psychic phenomena, and thus develop a research program based on physics, he points out similarities between the old period he reviews, and more recent developments. But he also reminds us in the conclusion that some figures’ orthodox physical interests were probably influenced by unorthodox ideas:

William Thomson was probably not completely wrong in suggesting that mesmerism informed Crookes’s path to the novel idea of matter in a radiant state; Varley’s earlier contribution to the pre-history of the electron—his study of the mechanical effect of electrical discharge—was almost certainly fueled by a spiritualist preoccupation with the apparent materiality of immaterial agents; and the problem of the mechanisms of telepathy, telekinesis and survival undoubtedly spurred Lodge’s major experimental and theoretical contributions to ether physics. (p. 338)



**Figure 4.**  
Cromwell Varley.

It is interesting to see that although many of the “physical–psychical scientists” in question tended to see, at least on occasion, psychic phenomena through the prism of physical processes, very few of them followed this influence in the actual investigation of phenomena. Such influence is seen in the work of William Crookes (1874), who clearly acted like a physicist when he tested D. D. Home’s telekinesis in ways to explore physical parameters. For example, Crookes was interested to see if Home’s psychic force could affect an accordion even when the instrument was enclosed in a basket surrounded by an electrical current, or when the force presumably had to go through water to exert an effect. A different approach, but still related to physical ideas, was that of Cromwell Varley (Figure 4), who used an electrical current as a means of control to make sure that medium Florence Cook was in a particular location while the materialized form of Katie King appeared in the séance room. According to Varley, “Miss Cook took the place of a telegraph cable, under electrical test” (Varley, 1874, p. 134).

Although much has been published about the relationship between physics and other topics, among them religion (Gregory, 2003), less has been done with psychic phenomena. Noakes’ book is the first major effort to study the history of physics and its relation to psychic phenomena. His work expands our knowledge of the interests and motivations of British “physicist–psychical scientists” considerably, which, in turn, helped the development of conceptions about matter, and the role of mind in the physical world. In doing so, Noakes not only has contributed to the historiography of physics (and science in general) but also to that of psychic phenomena and their role in both science and society.

Noakes gives us a generally neglected detailed view of a physically oriented community whose work and ideas complement the usual emphasis on psychology shown by figures such as Edmund Gurney and Frederic W. H. Myers (Gauld, 1968). Furthermore, while there is still plenty of emphasis on individuals such as Barrett, Crookes, and Lodge, whose contributions were essential, the author’s discussion of the “physical–psychical scientists” enlarges the cast of characters of this orientation.

I was glad to see generally forgotten figures such as Edmund E. Fournier d'Albe, and Cromwell Varley, among others, brought to the attention of modern readers. But other figures are even less-known to students of psychic literature because they did not publish their ideas. A case in point was civil engineer Samuel Tolver Preston, who speculated privately about physical explanations of telepathy (pp. 172–174). For example, in an unpublished letter to physicist George F. FitzGerald, another interesting figure, Preston mentioned in relation to telepathy the theoretical possibility that the “electromagnetic aether may be found ultimately to be capable of giving a sufficient explanation without looking at anything additional” (Preston, 1890).

Noakes' analysis goes beyond the expression of ideas of members of this group, arguing, on the basis of unpublished correspondence, that some of these “silent” physical scientists provided a nurturing intellectual environment for the speculations and actual research of the more active “physical–psychical scientists.” The identification of this invisible college reminds us of the importance of intellectual groups in the construction of knowledge, of the socio-collective aspects of idea development, a topic explored before in other specialties, an example being the role of Oxford physiologists in the work of William Harvey (Frank, 1980).

A major contribution by Noakes is the restoration of a physicalistic tradition that influenced many developments. But he also reminds us that the search for an expansion of physical horizons was not a materialistic quest for many of the individuals involved, as was clear in some of the writings of Barrett and Lodge.

The case of Barrett is interesting. He argued in a paper presented at the British Association for the Advancement of Science in 1876 that thought-transference may resemble “grosser cases of electric or magnetic induction” (Barrett, 1876, p. 87). However, and as discussed by Noakes, Barrett changed his mind later. Writing in the *Proceedings of the Society for Psychical Research*, he affirmed that now he thought that more knowledge about the phenomena in question “will shew the insufficiency of any physical analogy or materialistic explanation, and thus should tend to accelerate the passage of the existing wave of materialism . . .” (Barrett, 1882, p. 62). By 1918 he was ready to say: “The paramount importance of psychical research lies in its demonstration

of the fact that the physical plane is not the whole of Nature” (Barrett, 1918, p. 179). Such change may have been caused by various factors. Two possible ones are Barrett’s increased experience with the features of thought-transference and other phenomena, and his interaction with individuals with different ideas, such as Myers.

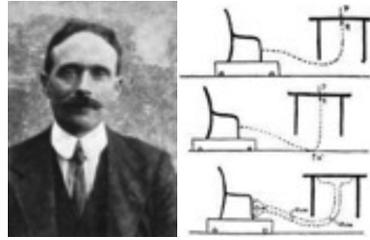
I also enjoyed Noakes’ discussions of the interactions of “physical-psychical scientists” with non-physicists. This includes Myers’ influence on Lodge (pp. 294–295). Some conceptual opposition is also covered, as seen in critiques by prominent SPR members of signal transmission explanations of telepathy. Noakes refers (p. 164) to the classic first major work of the Society, *Phantasms of the Living*, which I cite below in greater length:

Let us use every analogy which helps us, but let us recognize that nothing has been discovered which shows that thought-transference has anything to do with ether or with vibrations. Everything in the universe may be reducible to vibrations, for aught we know; but until some definite experiment, as of reflection, interference, or the like, can be brought forward to connect telepathy with ether-waves, it is surely safer to avoid using that analogy in a way which suggests that it has a prior right over many others which that be proposed. (Gurney, Myers, & Podmore, 1886, Vol. 2, p. 315)

My only critique of *Physics and Psychics* is that, on a few occasions, I wish the author had the opportunity to explore some issues in more detail. I say the opportunity, because, as Noakes informed me, he had to shorten his manuscript, a practical consideration many authors face.

An example in which more information would have been desirable is the discussion of the above-mentioned Hereward Carrington, which omits mention of his interest in vitalistic concepts (Alvarado & Nahm, 2011). That is, regardless of Carrington’s belief in the exteriorization of a biophysical force from the human body, he maintained that this force was part of life itself, which was a principle that animated the body, while transcending physical aspects of it. Interestingly, similar ideas presenting physical properties of psychic forces were postulated by many, *while at the same time indicating the existence of a transcendental reality*, as seen in the ideas about ectoplasm of French physician Gustave Geley (1919/1920).

Although Noakes mentioned William J. Crawford (Figure 5) in the book, I wish he had included more details about his physical mediumship investigations. Crawford, a lecturer of mechanical engineering, lived in Ireland, where he conducted physical measurements of table levitations (Crawford, 1916, 1919). In his view most table levitations he studied were caused by an invisible



**Figure 5.** William J. Crawford and drawings illustrating his cantilever ideas (from Richet, 1922, p. 550).

cantilever structure emanating from his medium, Kathleen Goligher, but supported as well by forces emanating from the sitters. He noticed that the medium's weight increased indicating that the weight of the table was transferred to her. But he also reported cases in which there was no increase in weight suggesting other mechanisms, such as a fulcrum on the floor. His research program, based on mechanical principles, is another example of how physical concepts guided some investigators to try to map the hidden physical workings of some phenomena. Crawford in fact wrote: "I desire to help in the discovery of the psychic laws, which are as real as physical ones, so that in the years to come there may be no more mystery" (Crawford, 1919, p. 144).

Another area that could have been explored further are the reasons for the lack of careful empirical studies exploring physical aspects of psychic phenomena. Unlike Crookes and Crawford mentioned above, "physical-psychical scientists" such as Barrett, Fournier d'Albe, Lodge, and Stewart discussed in the book presented much speculation but no empirical work to test for physically based hypotheses or to search for physical correlates of psychic phenomena. For example, regardless of Lodge's studies of telepathy, and mediumship, his published work has little actual research following physical assumptions, an exception being his recording of dynamometric readings of sitters in séances with medium Eusapia Palladino (Lodge, 1894, pp. 326–327).<sup>4</sup>

But these, and other thoughts, are minor points. They show to a great extent my interests and in no way detracts from Noakes' detailed and contextually sensitive study.

Outside the scope of *Physics and Psychics*, Noakes' excellent

study makes me wish for similar examinations of physical–psychic theorization and research conducted in other countries, and sometimes by individuals with no training in physics. Examples of this are the séances held in France at the Institut Général Psychologique with Eusapia Palladino (Courtier, 1908, briefly mentioned by Noakes, p. 288). In these séances researchers documented increases in the medium’s weight at the time of table levitations, and the discharge of an electroscope without contact. They also unsuccessfully conducted tests for ionization, temperature changes, and chemical changes in the atmosphere around the medium. Also relevant is German engineer Fritz Grunewald’s ideas and measurements of a field in the human body that had “ferro-magnetic properties and can therefore be objectively detectable” (Grunewald, 1922, p. 82). One hopes that studies of such developments will follow Noakes’ lead and thus place such research work in the context of each country’s traditions of physics, psychical research, and other relevant concerns, studies that could also be guided by the ideas of other fields, among them the biological and medical sciences.

## NOTES

- <sup>1</sup> Perhaps the most important of Lodge’s early contributions was his detailed report of séances with medium Leonora E. Piper, which presents several instances of veridical communications and information about the medium’s mentation (Lodge, 1890).
- <sup>2</sup> For a bibliography see Sommer (n.d.).
- <sup>3</sup> On this literature see Alvarado (2006) and Montandon (1927).
- <sup>4</sup> On the assumption that dynamometric measures of grip strength reflected the expenditure of energy in sitters, see Alvarado (2016, pp. 573–574).

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