Journal of Scientific Exploration, Vol. 26, No. 2, pp. 381–407, 2012 0892-3310/12

HISTORICAL PERSPECTIVE

The Sorcerer of Cobenzl and His Legacy: The Life of Baron Karl Ludwig von Reichenbach, His Work and Its Aftermath

Michael Nahm

Ida-Kerkovius-Strasse 9, 79100 Freiburg, Germany
michaelnahm@web.de

Submitted 12/11/10, Accepted 1/3/12

Abstract—Karl Ludwig von Reichenbach was a well-known and controversial personality in the 19th century. The controversies largely centered on his theories concerning a universal and all-permeating force he claimed to have discovered—the "Od." In this article, I highlight important events in von Reichenbach's life and his explorations into the frontiers of science. Subsequently, I present an overview on lines of experimentation that have addressed two of his propositions, namely (a) that the effects of Od can be directly detected by macroscopic movements of objects such as compass needles, and (b) that (electro-)magnets can be detected visually in the dark due to the emission of odlight.

Keywords: Reichenbach—Od—magnet—compass—light—visual perception

The more inexplicable a phenomenon appears, the deeper is it rooted, the greater is the significance it bears, the bigger is the interest adhering to it, and the more pressing is the challenge for science to examine and to explain it.

— Karl von Reichenbach (1854–1855(1):xxvi)

Introduction

This paper presents an historical overview of the life and work of Karl von Reichenbach (1788–1869) and some of the attempts to replicate his findings. Von Reichenbach was a well-known and controversial personality of his time, the controversies largely centering on his theories concerning a universal vital principle or force he claimed to have discovered, the "Od." He developed his theories in numerous publications between the years 1845 and 1867. Von Reichenbach derived the word "Od" from the ancient Germanic all-permeating principle termed *Wodan*, also modulated into *Odan* and *Odin*, which as well was personified as the Germanic god (von

Reichenbach 1852:198). Thus, the Od in von Reichenbach's writings refers to a dynamic principle permeating all nature.[1]

Although the overall reaction of academia toward von Reichenbach's claims was rather negative during his lifetime (e.g., Braid 1846/1970, Fechner 1856, Gouge 1846, Vogel 1863, Vogt 1854:322, von Liebig 1852:18f), his writings were very influential on later developments in the context of mesmerism, animal magnetism, and spiritualism during the second half of the 19th century. For example, Mesmerists implied that the discovery of Od validated the concept of animal magnetism (e.g., Lee 1866), and authors such as Beecher (1853), Brittan and Richmond (1853), and Rogers (1853) cited von Reichenbach's work in their discussions about forces that may account for the phenomena of physical mediumship. In France, Albert de Rochas popularized the concept of Od and associated it with the exteriorization of sensitivity and to the idea of the "double," a replica of the physical body thought to consist of subtle energies or matter that can be separated from the physical body (de Rochas 1895/1909). In the German-speaking countries, von Reichenbach's concept of Od continued to be widely adopted in theories about life and spiritualism until the end of the 19th century, most notably by the influential philosopher of spiritualism Carl du Prel (e.g., du Prel 1899), but were also promoted after the turn of the century (Feerhow[2] 1914, Kröner 1938, Quade 1924). Numerous other authors from the contexts of spiritualism, psychical research, but occasionally also from mainstream science, tried to experimentally replicate the findings of von Reichenbach. Some of them will be introduced in this paper; for a brief overview on Od and related concepts of human radiations see also Alvarado (2008). Von Reichenbach seemed largely unaware of the literature on mesmerism, somnambulism, and spiritualism when he started to get involved in research into Od, but quickly learned that it had much in common with these older concepts that also implied a universal vital principle which permeated everything and could be utilized by human beings. However, he distanced himself from these earlier concepts and mentioned them only occasionally, usually very critically. He regarded them as largely ill-founded and confusing, shrouding a true core with a mass of useless if not misleading details which had been built on inadequate experimental methods. His aim was to elaborate a theory of Od solely on the grounds of his own findings, and he claimed that only in the framework of his new system would parts of the older theories find their proper place in science (e.g., von Reichenbach 1854–1855(1):xxixff).

In recent decades, von Reichenbach's work has not received much attention and is usually discussed from a historical perspective (Alvarado 2008, Bischof 1995, Erdbeer 2008, Ingensiep 2001, but see also Baldwin 2006).

Karl Ludwig von Reichenbach, about 70 years old.

At present, details of von Reichenbach's life and writings seem to be not well-known among researchers actively exploring the frontiers of science, let alone among mainstream scientists. Moreover, many of the attempts to replicate von Reichenbach's findings seem forgotten today. In this paper, I present a brief overview on his life and on two particular lines of investigation that I consider of interest, namely that (a) effects of Od can be directly observed by macroscopic movements of objects such as compass needles, and that (b) (electro-)magnets can be detected visually in the dark due to the emission of odlight.

The Life of Karl Ludwig von Reichenbach (1788–1869)

Early sources providing biographical data of the life of Karl Ludwig von Reichenbach include Schrötter (1869) and von Wurzbach (1873); a recent biography including a list of further references and a bibliography was compiled by Ferzak (1999). Reichenbach was born on February 12, 1788, in Stuttgart (Germany) and died on January 19, 1869, in Leipzig (Germany). Between these dates spans the eventful life of a creative and spirited man who climbed the highest peaks of scientific reputation and financial prosperity, but died lonely and comparably poor in a hotel room far away from his former home. Karl was the eldest of four children. After some unsteady years in early manhood, he married his only wife, Friederike Luise Erhard. She gave birth to five children, all of whom died without giving birth to children of their own. Because his wife came from a wealthy family, Reichenbach took the opportunity to study fields of interest to him before he determined his own professional future. The fields he found most fascinating were metallurgical processes and the carbonization of wood. Soon, he developed an industrial oven to burn wood faster than traditional

models did while simultaneously improving the quality of the produced coal—an achievement that earned him much respect from experts in the field and resulted in further occupations. In 1821, Count Hugo von Salm-Reifferscheid (1776–1836), owner of large metallurgical factories in and around Blansko in Moravia (then in the Austrian Empire), employed Reichenbach as the supervisor of manufacturing operations. The factories prospered and enabled Reichenbach to purchase several estates and additional industrial plants. With well-equipped chemical laboratories at hand, Reichenbach commenced pioneering studies analyzing byproducts of wood carbonization, namely tar, from 1825 onward. He discovered and identified a number of important substances, most notably paraffin, but also several other substances such as creosote (a mixture of antiseptic phenols), the gasoline-like eupione, and pittacal (the first synthetic dyestuff to be produced commercially). Between 1830 and 1836, Reichenbach published 23 papers on organic chemistry in the most noted German chemistry journals, thus substantiating his reputation as a gifted chemist. He maintained good contact with leading chemists of his time, including Jöns Jakob Berzelius (1779–1848), Friedrich Wöhler (1800–1882), and Justus von Liebig (1803–1873). Reichenbach's interest in chemistry declined thereafter and was followed by passionate explorations into two other fields of research: first, studying meteorites, and subsequently the Od. His interest in meteorites was raised in 1833 after a meteorite had crashed into the Earth's surface near Blansko. Reichenbach recruited a team to systematically search the land for the projectile and was successful on the 11th day. Gradually, Reichenbach compiled one of the largest private collections of meteorites and performed pioneering explorations into their analyses. He developed a classification system for meteorites depending on their contents and structure, and coined the still-used terms Kamacit, Taenit, and Plessit for components of iron meteorites. Between 1835 and 1865, Reichenbach published 28 treatises on meteorites, and, despite his controversial publications on Od, advanced to be an authority in the field.

The years 1835 and 1836 were pivotal for Reichenbach's private life. His wife died in 1835, and his benefactor Count Hugo von Salm-Reifferscheid followed her in 1836. Moreover, Reichenbach, by then a pecunious man, bought Reisenberg Castle, close to Vienna, in 1835, commonly named "Cobenzl" after the former owner Count Philipp von Cobenzl. In 1839, Reichenbach was raised to the rank of Baron by King Wilhelm of Württemberg, Germany, due to his excellent contributions to science which also allowed for practical applications in the area of technology. Yet, von Reichenbach's employment as supervisor of the industrial plants in Blansko ended abruptly in 1841 when he was discharged from all positions by the

son of Count von Salm-Reifferscheid who accused von Reichenbach of deceptive business management. A lawsuit followed that von Reichenbach won in 1846. It provided him with a financial settlement.

Free from professional occupations and financial restraints, Reichenbach's involvement with Od began in 1844 and persisted until his death in 1869. However, his struggle was doomed to fail. In his publications about Od, the Baron often neglected to present adequate documentation of the experimental settings and the exact way he had obtained his results. Moreover, he seemed to ignore and to underestimate alternative explanations for many of the claimed phenomena, such as (auto-) suggestion. When confronted with critique or accusations, he would respond with rumbling trivialities and counter-accusations (e.g., von Reichenbach 1855, 1856) instead of carefully and level headedly explaining his experimental conditions, presenting detailed clarifications, and improving his style of experimentation and publication. Among scientists, even former friends such as von Liebig, who had published von Reichenbach's first treatise on Od in his chemistry journal, turned their backs on him and became critics of his work. In addition, the public began to fear von Reichenbach, the "Sorcerer of Cobenzl," a tall man of imposing stature, usually dressed in dark coats, who performed mysterious experiments with his "sensitive" subjects in darkened rooms full of magnets, wires, and crystals behind heavy black curtains, and who even took his sensitives to graveyards at night to examine purported odic emanations from rotting corpses. In the 1860s, "Cobenzl" Castle must have been a lonely place. In a reprise on von Reichenbach, Bauer (1907) described how he found him sitting alone at an immense table after having ingested a meal. The Baron loved to walk in the forests surrounding his castle on self-made paths, the entries to which were hidden from public view. Financial ruin already loomed over Cobenzl Castle. Several of von Reichenbach's factories suffered from adverse side effects of the war at the Baltic Sea, the insurrection in India, unusual summer draughts in Austria that dried the rivers required to ship tree logs needed in the factories, and from simple mismanagement. Von Reichenbach wrote desperate letters to influential personalities in Vienna to secure his stay at his beloved Castle, and to save his enormous library, the laboratories, and the huge naturalist collections. He feared he would not survive leaving the Castle. But to no avail. In July 1867, von Reichenbach had to leave Cobenzl. Sickly and almost 80 years of age, he abandoned Austria and moved to a hotel in Leipzig. Knowing that his days were numbered, von Reichenbach restlessly sought to convince at least one influential personality of his time, Gustav Theodor Fechner (1801–1887), of the reality of Od. The erstwhile Sorcerer of Cobenzl died in his hotel room in Leipzig on January 19, 1869.

Seven years later, Fechner (1876) published an account of his experiences with von Reichenbach. I will present essentials of it later.

Reichenbach's Work on Od

In the following section, I present sketches of von Reichenbach's major works on Od. The first publication about Od was printed in 1845 as an addendum in a respected journal of a friend of his, Justus von Liebig's *Annalen der Chemie und Pharmacie* (von Reichenbach 1845). Initially welcoming von Reichenbach's intriguing descriptions of the observations related by the sensitives, von Liebig refused to publish further manuscripts in his journal due to increasing skepticism from his colleagues and on his own part. Four years later, the Baron published a revised version of these texts and added a second volume exclusively dedicated to the luminous phenomena of magnets that were reported by his sensitives (von Reichenbach 1849). In the beginning of the first volume, the author described how he happened to investigate the curious phenomena associated with magnets. In March 1844, he was consulted by a Viennese physician to visit a sick woman, Miss Nowotny. She suffered from severe headaches and repeated cataleptic fits. Moreover, she had developed an intense hypersensitivity to light and preferred to lie in darkness. In her darkened room, she stated she was still able to perceive everything as in dim light. Von Reichenbach, at that time interested in theories about the origins of the northern lights that sometimes grace the night skies of the polar regions, became curious. It came to his mind that a person with such a heightened visual sense might perhaps be able to perceive lights around magnets, as it was known that northern lights were influenced and perhaps caused by magnetic effects. He suggested performing tests with Miss Nowotny, and they resulted in positive feedback. Miss Nowotny claimed she could indeed see light emitted from the two poles of a large horseshoe magnet, but only when it was open. When its poles were closed with the armature she perceived no light. When a much smaller magnet was shown to her without informing her of this experimental change, she correspondingly described much weaker luminous effects. Now, von Reichenbach was hooked and continued to experiment with Miss Nowotny. However, he had only a couple of days left. She recovered rapidly from her disease and lost her hypersensitivity and her ability to perceive light around magnets as her state of health improved. Thus, von Reichenbach sought independent verifications of her descriptions and began to search for other persons who were sensitive enough to perceive lights around magnets. Within a short time, he was successful in finding a handful of individuals who allegedly described identical phenomena without being informed about what might be expected. In particular, he

found persons who seemed much more sensitive than Miss Nowotny, such as Miss Reichel. For these sensitives, the entire magnet seemed to glow in the dark, not only the area above its poles (Figure 1a). All the sensitives stated that the two luminous flames above the poles of a horseshoe magnet did not attract each other or bend together, different from the magnetic field spanning the poles. All agreed furthermore that those flames were always emitted straight in the direction in which the magnet was held. They didn't behave like candle flames which always curl upward irrespectively of the

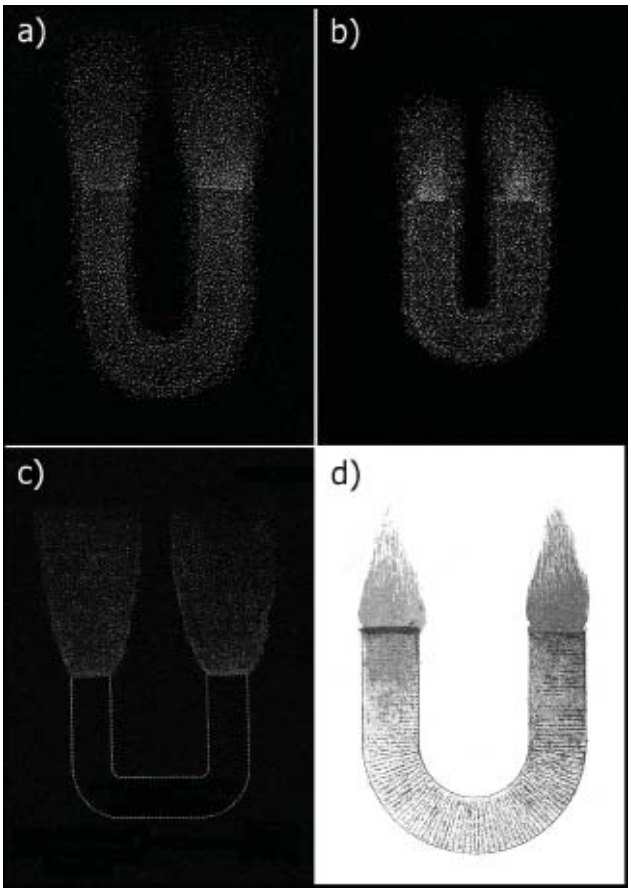

Figure 1. Visual impressions of horseshoe magnets in the dark described by a) sensitives of von Reichenbach (1849), b) Neumann and his sensitives (Neumann 1857), c) three persons studied by the Reichenbach Committee of the SPR; the body of the magnet was not visible to them (Barrett & Collaborators 1882–1883), and d) hypnotized persons of de Rochas (1895/1909). All figures were digitally revised by M. Nahm.

direction in which a candle is held. Moreover, the test persons reported that electromagnets produced the same type of luminous emanations as permanent magnets. In both cases, the sensitives described the quality of the lights as slightly different above each magnetic pole, thus von Reichenbach concluded the phenomenon must be of a polar nature. All higher sensitives additionally confirmed that these lights were strong enough to illuminate objects in the surroundings of the magnets, and that they left an after-image in their eyes. In the later stages of his experimentations, von Reichenbach took pains to make sure that the darkness in the room was complete, and the sensitives had to spend up to several hours in this darkness to accommodate to it before the experiments started.

Throughout the rest of the first volume of this book (1849(1)), von Reichenbach described numerous further experiments, many of which concerned the bodily sensations described by the sensitives. Furthermore, he aimed at showing that identical emanations and sensations like those reported from magnets can be found in crystals and human hands, that these effects can be transferred to water and many other materials, and that electricity, heat, friction, chemical reactions, sunlight, and moonlight also serve as sources of this principle, which must ultimately be regarded as a universal and all-pervading force of nature, a universal adjunct of all matter. He suggested using the short word *Od* for it.

The second book volume (1849(2)) is exclusively concerned with the luminous phenomena of magnets described by the sensitives in the dark room. Von Reichenbach began this volume by presenting the names, and often the exact addresses, of almost 60 new sensitives he recruited among all social strata. They included three professors and four physicians. He then proceeded with describing what each of these sensitives claimed to have observed in the dark room, thus countering the voices criticizing that he had only worked with a handful of ailing women before that. Still, these accounts are almost bare of technical descriptions of the exact circumstances of the experiments. Some sensitives reported a variety of bodily sensations, but seemed unable to perceive luminous phenomena. The extent to which those persons were able to perceive luminous emanations was also varied and ranged from faint impressions to claims of seeing all objects shining in considerable light. Although most of these new sensitives were healthy persons, it appeared to von Reichenbach that sickly persons are generally more sensitive to the perceptions of Od. Moreover, the sensitivity of certain individuals seemed to vary depending on the state of health, in the case of women it seemed more pronounced during their menses. Some sensitives allegedly perceived the odlight of objects that were invisible to the Baron, and led him straight toward these objects. The largest part of

the second book volume (1849(2)) is dedicated to detailed analyses of the different forms that luminous odic emanations can allegedly assume. Next, von Reichenbach presented the reports of sensitives who observed odic emanations of magnets in different media such as in a vacuum bowl and in a water bowl. Apparently, all agreed that lower air pressure resulted in more extended luminous phenomena, and that immersion into water resulted in dramatic declines of the luminous aura around the magnets. Toward the end of the book, von Reichenbach argued that northern lights are likely to represent an immense manifestation of odic emanations.

Von Reichenbach's next publication, *Odisch-Magnetische Briefe* [*Odic-Magnetic Letters*] (1852), consisted of a collection of articles, recycling the ideas of his former work specifically addressing the public. New elements consisted of the explicit discussion of light emitted by plants in the dark, notably by their flowers. An often-cited episode concerns Stephan Endlicher (1804–1849), a highly respected professor of botany at the university of Vienna and director of the botanical garden. At first, he ridiculed von Reichenbach's sensitives, but he turned out to be a sensitive himself. Apparently, he was able to perceive distinct luminous emanations of plants in the dark. When a pot with plants was put in front of him in full darkness on one occasion, he seemed to recognize them solely by their glow and exclaimed "It's a blue flower, it is a gloxinia!"—this was correct (von Reichenbach 1852:56). Von Reichenbach also stressed the importance of training the ability to perceive odlight, which could improve over the course of several years.

In the years 1854 and 1855, von Reichenbach published his two-volume major work *Der Sensitive Mensch und Sein Verhalten zum Ode* [*The Sensitive Human Being and His Relation to Od*], a massive treatise of almost 1,700 pages in which he continued to report the results of his investigations—by then, allegedly amounting to 13,000 experiments with large numbers of sensitives. The two volumes brim with ideas and experiments. Those included in volume one mainly concern bodily reactions of sensitives to certain stimuli. The second volume focuses again on visual impressions of Od, but also on its effects on other senses. I will touch on only a few topics, which fit into the context of this paper. For example, the book contains a whole chapter on odic emanations of plants. Von Reichenbach listed the names of more than 40 persons with different degrees of sensitivity who claimed to see light emitted from plants in the dark, notably from their flowers. Some of the higher sensitives stated that the flowers illuminated the whole room so that they were able to distinguish objects in it, and some, like the mentioned professor Endlicher, described minute details of blossoms and were even able to determine which plant species was brought to them in

the dark chamber. The odic emanations were only visible with fresh or living plants, withering plants lost their shine. A few years later, von Reichenbach published a whole book on plants and Od (von Reichenbach 1858). Among the most curious findings he reported in his major work (von Reichenbach 1854–1855) was the claimed ability of several sensitives to see through metal. Von Reichenbach was led to investigate these claims after occasional reports of some highly sensitive persons who stated not only that they saw magnets or metal wires shine in the dark, but that these objects also seemed translucent. After he had inserted metal plates in the window shutters of his dark chamber, about 40 sensitives noticed these plates, although they were not informed that these plates had been inserted. The lower sensitives only recognized a luminosity at these spots, but several high sensitives including Endlicher reported they were able to see through these metal plates which to some appeared as transparent as glass. These individuals were able to depict the outside scenery correctly. Von Reichenbach also described successful experiments on table-tilting with some of his highly sensitive persons, who reported various luminous phenomena associated with it. Moreover, he acknowledged that some sensitives displayed telepathic abilities, but remained highly skeptical toward purported future predictions.

In a later publication, von Reichenbach (1866) summarized a series of fundamental experiments that were supposed to prove the existence of Od, including experiments which aimed at demonstrating that Od also possessed the ability to move objects. He described how a pendulum could start moving inside a bottle solely by putting one's finger on the thread the pendulum was fastened with on the bottle top, how objects such as paper cards and bar magnets could be set in turning motion on the fingertips of sensitives, and other experiments. He also described other experiments on table tilting. To exclude the possibility that the sitters could move the table with their hands, he fastened drooping ropes to its sides which were held by the sensitive sitters at their other end. Thus, mechanical contact with the table was avoided, whereas a physical bridge between body and table was still maintained. Von Reichenbach reported this experiment had worked well.[3]

In the last publication issued during his lifetime, von Reichenbach (1867) again stressed the importance of movements that were apparently induced by odic influences. He maintained that typical arguments such as suggestion or fraud could be refuted easily by his experimental designs. He again described some of the experiments in his previous publications, but going more into detail. For example, the Baron devoted 40 pages exclusively to table turning and added the information that the ropes were fastened only very lightly to the table, so that any drawing movement on

behalf of the sitters would have disconnected them immediately from the table. He also claimed that heated tables seemed to work better than cold tables, and that laying one's head on the table would also result in table movements—interesting hypotheses that might be tested one day. Although von Reichenbach does not state it explicitly, it appears by his descriptions of what he had observed and how the persons had behaved that these experiments were all performed in good or normal light.

Od on Trial

Soon after the Baron's first publication on Od in 1845, the controversy about the nature of the described effects began to stir. I will present an overview of the efforts to replicate von Reichenbach's experiments in the following, discussing only two of the many facets of Od that have been reinvestigated: its ability to (a) move small objects such as compass needles and to (b) produce luminous effects in the dark that are visible to sensitives.

(a) Object Movements: The Refutation of the "Suggestion" Argument

A prominent witness who published his experiences with the Baron and some experimental results was Gustav Theodor Fechner, famous for his pioneering work on "psycho-physics" in which he argued for a parallelism between the human mind and brain physiology, but who had also authored several other influential philosophical treatises. Fechner was in contact with von Reichenbach starting in 1845 and had criticized von Reichenbach's work (Fechner 1856), but he remained considerate in his formulations. When the Baron left Vienna in 1867 and moved into the hotel in Leipzig, it seems that von Reichenbach deliberately chose this town to convince Fechner of the reality of Od—knowing that there was not much time left in his life. In the same year, von Reichenbach (1867) had published the already-mentioned book in which he stressed that sensitives could move objects in inexplicable ways by using Od, and that the often-raised argument that all observations attributed to Od were based on suggestion became futile in this light. However, he had focused on describing his studies on table turning, and the dubious experiments with the pendulum or turning magnetic needles on fingertips, whereas he seemed unaware of the enormous significance of the simple experiments he had the sensitives perform with compasses. It was Fechner who first stressed the importance of these experiments. In 1867, the Baron paid Fechner unannounced visits in Leipzig and tried to convince the rather reluctant philosopher to participate in joint investigations, who at one point grumblingly agreed. Fechner (1876) published an account of his meetings with von Reichenbach

seven years after the Baron died. Both performed a variety of experiments in daylight with von Reichenbach's housemaid, apparently a moderately sensitive person. Some experiments clearly failed, but others worked well without exception. Fechner was particularly impressed by the ability of the woman to deflect a compass needle simply by nearing her fingers or elbows to the compass. The experiments were successful on three different days. On the last occasion Otto Linné Erdmann (1804–1869), professor of chemistry in Leipzig, had joined Fechner. It seemed to them that they had excluded all possibilities of fraud. Fechner was stunned by these observations. Although he remained highly skeptical toward the speculative and multi-faceted theory of Od, Fechner regarded it of great importance to follow some of the Baron's experiments, as they might prove to be of great value for science. He tried to repeat the compass experiments with several other persons, but his attempts invariably failed. He also performed a literature survey and found one earlier source in which a somnambulant woman had purportedly deflected a compass needle (Bähr & Kohlschütter 1843; for another early source see Burdach 1840; for other examples, see Durville 1895–1896/1912). In collaboration with scientists at Leipzig University, Fechner developed an electrical apparatus to test if human fingers can be magnetized or electrically charged—it seemed impossible. The puzzle remained. Another colleague of Fechner's at Leipzig University, professor of astrophysics Johann Karl Friedrich Zöllner (1834–1882), had paid attention to Fechner's reports. When Zöllner started to work with the medium Henry Slade (1835–1905), his first test for potentially unusual abilities consisted of repeating Fechner's compass experiment.[4] Indeed, Slade was successful on three different days (but not on each day) and even succeeded in magnetizing steel knitting needles solely by holding them in his hands. It seems that Slade was unaware of his ability to move compass needles without touch before this visit to Germany (Zöllner 1878:329). Similar experiments continued to be performed by other experimenters with apparent success. Among the authors who reported on successful deflections of compass needles without touch were Harnack (1905), de Rochas (1906), Grunewald (1920, 1922), von Rechenberg-Linten (1921), and Zeller (1925). Two noted Polish mediums, Stanislava Tomczyk (Ochorowicz 1909) and Franek Kluski, were also reported to be able to deflect compass needles.[5] Kluski was said to be able to move the needles of compasses holding his hands 12 centimeters above them. In experiments performed in 1924, the needles of three compasses reacted sensitively to his fingers and toes, but also to his chest and stomach regions (Okolowicz 1925; for a brief mention of these experiments see Weaver 1991–1992). In 1939, long after Kluski had stopped serving as a medium for spiritistic sittings in 1925, he was

apparently still able to rotate compass needles without touch (Thorsen 1950). Another medium, German Heinrich Melzer, was also said to have moved compass needles without touch (Hess 1935). Similarly, a Greek woman with seemingly psychic abilities who was studied at the University of Athens repeatedly succeeded in deflecting a compass needle (Tanagra 1932, Tanagra, Walther, & Herbert 1972), and a noted Hungarian writer, Count Alexander Berényi, was reported by a team of scientists to be capable of performing these actions (Röthy 1936). Also, psychic Annie Abbott was reported to have moved the magnetic needle by moving near it, particularly her right hand (Cross 1939). In more recent years, reports of further successful results produced by persons with psychic abilities such as Nina Kulagina (Keil, Herbert, Ullman, & Pratt 1976), Felicia Parise (Honorton 1974, Watkins & Watkins 1974), Matthew Manning (Owen 1974, Owen & Whitton 1974), Uri Geller (Hasted 1981), a girl called "Lena" (Mattuck 1977), and a mention of the psychic Geoffrey Boltwood (Scofield & Hodges 1991) were published. Although the observations of all these authors were similar in that a compass needle was moved in an inexplicable way, they differed in details. In some cases, the left and right hand caused movements in opposite directions, but in other cases both hands deflected the needle in the same direction. Moreover, it seemed that sometimes the hands acted upon the compass by magnetic influence, whereas on other occasions the movements were apparently not effected by magnetic or electric forces but by plain psychokinesis. In sum, it seems these are simple but intriguing experiments which might contribute to establishing the reality of abilities often regarded as "paranormal." Such experiments are easy to perform and to control, and, as Fechner had noticed long ago, seem well worthy of further investigation.

(b) To See or Not to See

A second potentially valuable line of investigation is provided by the purported luminous emanations that were said to be emitted from magnets. Even before von Reichenbach's descriptions of the luminosity of inanimate objects such as magnets and crystals, it was long established in the literature of animal magnetism and somnambulism that certain sensitive persons can perceive luminous effects around and within living organisms or objects. For instance, Armand de Chastenet de Puységur (1811) commented on a somnambulant man who refused to use lights in a cellar because all objects would shine for him in the dark, and Philipp Heineken described the case of a sick somnambulant woman who was able to see well in total darkness (Heineken 1818:43). Heinrich Bruno Schindler (1857:152) pointed to other individuals, starting with Roman Emperor Tiberius, who had claimed to be

able to see or even to read in darkness. Schindler regarded the awareness of odlight as the induced and selective perception of the "magical light" said to permeate all objects in the concepts of Kabbalism, Neoplatonism, Gnosticm, Sufism, Vedanta, and also somnambulism (Schindler 1857:146ff). Moreover, a few magnetizers seem to have discovered that some psychic individuals claimed to see magnets or objects charged with electricity glow or emit a luminescence of bipolar nature independently of von Reichenbach. For example, French physician Jules Charpignon (1848) published reports of experiments performed with somnambules who correctly distinguished several magnetic objects due to peculiar bipolar luminous emanations. Similarly, Joseph Haddock (1851) reported experiences with a woman who perceived colored light issuing from magnets, the lights being brighter above the north pole of the magnets than above the southern pole. Haddock stated that he had conducted these experiments without knowledge of von Reichenbach's work, and had only learned of it in 1850 when he visited William Gregory, professor of chemistry in Edinburgh, who translated the Baron's first book into English.[6] Unusual luminous phenomena were also discussed in the early literature on experiences such as hauntings and apparitions. For example, Catherine Crowe (1848) related the luminosity of apparitions to the light reported by somnambules, and reported the case of a young girl of highly nervous temperament who was repeatedly punished because she claimed to see luminous flames issuing from organisms and objects (Crowe 1848(2):165). Similarly, one of von Reichenbach's most sensitive subjects, Miss Reichel, claimed that she had perceived luminous emanations of objects and living beings since her childhood (von Reichenbach 1849).

Extensive attempts to replicate von Reichenbach's experiments were performed in 1846 by a committee of Viennese physicians who tested a few sensitives, mainly Miss Reichel, in 22 sittings during the course of six months (Gouge 1846). The committee failed to record successful results with the exception that Miss Reichel seemed able to discern magnetic and non-magnetic metal objects held in her hands. Overall, the committee concluded that the sensitives were largely subject to delusions and on occasion resorted to fraud. Von Reichenbach (1849(2)) opposed their conclusions and criticized the methods employed, which he regarded insufficient for a variety of reasons. However, the experimental series performed by the Viennese physicians rank among the most rigid and valuable replications of von Reichenbach's experiments, highlighting the numerous problems associated with experiments in darkened rooms and difficult-to-handle sensitives.

Another critical article was published in the same year by James Braid

(1846/1970), who had already rejected concepts of magnetic forces or fluids in earlier publications. He tested the ability to see luminous effects around magnets in "several" persons whom he led into a darkened closet in which he had put a magnet. Similar to the findings of the Viennese committee with Miss Reichel, all were able to perceive luminous effects only after respective leading questions were offered by Braid, and they also continued to report these effects when the magnet had been removed. Consequently, Braid concluded that the phenomena described by Reichenbach's sensitives were mental delusions due to a leading external stimulus and/or excited imagination—possibilities that the Baron appeared to neglect and to ignore, perhaps naïvely, but, as it seemed to some who had witnessed the Baron experimenting, sometimes even deliberately (Vogel 1863).

Yet, a positive eyewitness testimony from Gustav Brabbée, who had attended more than a dozen meetings in von Reichenbach's dark room, was later included in Albert von Schrenck-Notzing's (1891) foreword to a posthumous publication of von Reichenbach. Brabbée described how a highly sensitive woman saw all objects in the room as distinct as in daylight, never erring with her descriptions of various flowers, magnets, or of the number of digits of a hand that was raised into the air, or hidden from her to mislead her, and so forth.

Confirmations of the reported luminous Od-effects were also published shortly after the first critical reports by other authors. Both early translators of the Baron's first book into English, William Gregory and John Ashburner, a physician in the tradition of animal magnetism, soon experimented with magnets according to von Reichenbach. Both Gregory (von Reichenbach 1850) and Ashburner (von Reichenbach 1851) reported in comments of their translations that some individuals were indeed able to perceive luminous phenomena around magnets as the Baron had described. According to Ashburner, they were able to do so "without being informed of the purpose for which they were introduced" into a darkened room (von Reichenbach 1851:12). In Germany, Ludwig Büchner (1854), famous for his soon-to-follow classic treatise promoting materialism, *Kraft und Stoff* [*Force and Matter*] (Büchner 1855), published results on his investigations of Od that he had performed with about 100 persons. He set out to replicate von Reichenbach's experimental findings thinking that they indeed seemed odd, but that they nevertheless might be of importance and should be tested before dismissing them for purely theoretical considerations and superficial accusations. With regard to the dark chamber, he led "various persons of both sexes" into it, unfortunately not giving the exact number (Büchner 1854:36). He conducted 11 sittings in the dark, each with a duration of one to three hours. It appears that most persons perceived nothing, that

some made dubious claims Büchner was inclined to regard as subjective illusions, but that eight individuals reliably perceived luminous phenomena. Of these eight sensitives, four seemed to perceive an entire horseshoe magnet glowing and emitting light from its poles, this light being differently colored on each pole. One person even claimed to see a luminous smoke curl up to the ceiling, just as some of the Baron's sensitives had reported. According to Büchner, these sensitives were entirely unaware of von Reichenbach's publications. The higher sensitives also claimed to see other persons glow in the dark, and one was apparently able to locate a flowering bush correctly due to its light emissions. Büchner (1854) also mentions another researcher who had worked with a sensitive who claimed to see light of different colors emanating from the poles of a magnet in the dark (1854:43). In 1856, physician Albert Constantin Neumann, himself a sensitive who declared he could see persons, metallic objects, and magnets shine in darkness, wrote to von Reichenbach that he had by then discovered 32 other sensitives who perceived luminous phenomena in his own dark room (von Reichenbach 1856), and he published a brief summary of his work shortly after (Neumann 1857). An outline of how he and his sensitives alleged to perceive a horseshoe magnet is presented in Figure 1b. In England, the interest in Od continued in spiritistic circles. In a lecture given to the London Dialectical Society in 1869, Cromwell Varley, a renowned electrical engineer closely involved in laying the transatlantic telegraph cables in the 1860s, reported that his wife possessed mediumistic abilities and was capable of perceiving odic flames issuing from magnets, crystals, and human beings. He had experimented with her and stated that he had achieved "abundant and conclusive evidence" in favor of these phenomena (Anonymous 1871:167). In 1871, Varley's friend Lord Lindsay performed an experiment with the famous medium Daniel Dunglas Home (1833–1886) in his private laboratory in London along with three other guests: Lord Adare, Dr. Bergheim, and his brother-in-law.[7] Lindsay placed a large permanent magnet on the floor of a completely dark room a considerable distance from the door. Home was then brought into the room and remained standing at the door for some moments. Then he claimed to see a sort of light on the floor. He took the hand of Lord Lindsay, walked him across the room, stooped down and placed his hand directly on the magnet (Lindsay 1871).

In 1879, Sidney Billing (1879) reported how he had accidentally seen a white oscillating flame on a book table in the library of a friend. When he ascertained its cause, he found a large upright magnet from the poles of which the light seemed to proceed. His friend, the owner of the magnet, was not able to see this light (Billing 1879:355). Also in 1879, amateur

scientist and astronomer John Rand Capron reported that five persons in a dark chamber did not succeed in perceiving luminous magnetic effects during an experimental session in the dark when a hidden operator silently connected and disconnected a battery linked to an electromagnet (Capron 1879). Later, he published a note on a man who had accidentally noticed weak flames around the poles of a large ordinary magnet glowing in the dark, having never heard of von Reichenbach's work before (Capron 1884).

The most carefully conducted and documented experiments up to that time were performed by the "Reichenbach Committee" of the Society for Psychical Research (SPR), headed by physicist Sir William Barrett (Barrett & Collaborators 1882–1883). Alfred Russel Wallace, co-founder of the theory of evolution by means of selection of the best-adapted individuals, was convinced of the reality of the luminous phenomena described by von Reichenbach, but held that they should be retested. In a letter to Barrett in 1876, he enticed him to repeat such experiments, because this issue could easily be tested and settled (Marchant 1916(2):197). In 1877, he repeated his incitement and recommenced to use an electromagnet that could be switched on and off (Marchant 1916(2):198). It seems likely that the establishment of the Reichenbach Committee by Barrett was to some extent invoked by the stimulation of Wallace. After the foundation of the SPR in 1882, this committee had screened the ability to perceive luminous emanations of permanent magnets and electromagnets in 45 persons after they had spent at least one hour in the dark to allow for visual accommodation. Of these 45 persons, three men who had declared entire ignorance of von Reichenbach's work professed to perceive luminous appearances around magnets (Barrett & Collaborators 1882–1883). In subsequent experiments, two of these men were tested and seemed to display the ability to detect correctly when an electromagnet was switched on and off in irregular intervals without their knowledge. All three described the magnetic light of a horseshoe magnet similarly to those outlined by von Reichenbach's sensitives, the flame above the magnetic north pole appearing slightly brighter. This detail is not apparent in the picture the committee included in their report (Figure 1c). Barrett (1883) also stated that he held a permanent horseshoe magnet in different positions in front of one of the sensitives. Apparently, this person was able to correctly describe Barrett's actions such as holding the magnet upward, downward, or moving it around. Moreover, two of the sensitives and one member of the SPR research committee felt peculiar sensations in heads and faces when placing their head between the poles of the electromagnet, and were at times able to correctly determine whether it was excited or not (Barrett & Collaborators 1882–1883). Barrett (1884) repeated this experiment successfully shortly after with one of the

sensitives. In addition, a rough and preliminary sketch of experiments performed in a dark chamber by another experimenter left slightly positive but inconclusive results due to the unsatisfactory experimental methods applied (Stewart 1884). It seems these experiments were not pursued. All in all, the Reichenbach Committee tested about 100 persons, but found no more sensitives than the three reported on previously (Barrett 1886).

Around the same time, members of the American Society for Psychical Research aimed at replicating the British experiments with magnets. William Pickering (1886) reported that he was not able to see luminous emanations from a powerful electromagnet, and Joseph Jastrow with George Nuttall (1886) tested the ability to determine whether a powerful electromagnet was excited or not by sensations in the head. Apart from participating in the experiments themselves, Jastrow and Nuttall tested "eight students, young men in good health" (1886:124). All ten individuals failed to display a sensibility for a magnetic field.[8]

Two French researchers who performed extensive studies following in the footsteps of von Reichenbach were Albert de Rochas (1837–1914) and Hector Durville (1849–1923). Both largely confirmed the findings of the Baron. Assessing the ability to detect luminous emanations from magnets visually, de Rochas reported many successful experiments in which an apparently highly sensitive hypnotized man, "Albert L.", was able to correctly describe the status of different magnets. To test if the visual impressions of the man were objective observations, de Rochas designed an apparatus in which an electromagnet could be handled in three different ways: switched off with no electric current flowing inside, and switched on with a current flowing from pole A to pole B, or flowing in the opposite direction from pole B to pole A. When an experiment was performed, the apparatus was brought into a random position the state of which de Rochas himself was not consciously aware of. Albert L. was then asked to describe what he saw. After that, de Rochas tested his statement by nearing a compass to the electromagnet to detect its status. Albert L. was tested on several occasions, sometimes a couple of times on one day, and sometimes with an interval of a couple of days. The experiments were performed between 2 and 4 p.m., the daylight being dimmed by a curtain. In 22 experiments, Albert L. was correct in determining the status of the electromagnet on each occasion, reporting two differently colored emanations from the poles which enabled him to discern the direction of the electric current in the case where the magnet was switched on (de Rochas 1895/1909:20). A drawing of the luminous emanations as described by de Rochas' hypnotized sensitive persons is given in Figure 1d. De Rochas also tested if active suggestion can influence the hypnotic subjects, and on occasion obtained confirming results.

Thus, he stressed the importance of avoiding any influence whatsoever on the sensitives and suggested posing only one question when asking for a description of their perceptions, namely "What do you see?" (de Rochas, 1895/1909:41).

The studies and findings of Durville were similar to those of de Rochas in many regards. When testing the ability to perceive light emanating from magnets, Durville worked with sensitives who were able to describe a large horseshoe magnet in the dark. He confirmed that for highly sensitive persons, the entire magnet seemed to glow and that its emanations appeared to reach the ceiling of the room and to spread there, providing sufficient light to read a newspaper in the vicinity of it. The light emanating from the two poles was described as being of different quality. He included a drawing of the magnet as described by his sensitives, which is largely identical to Figure 1a and 1b of the present paper and thus is not reproduced here (Durville 1895–1896/1912:324).

In 1907, Dutch researcher Floris Jansen (1907) published the results of what appears the most advanced study addressing the perception of magnet light ever performed. After briefly working with de Rochas in Paris, Jansen returned to The Netherlands in Spring 1906 and founded in Amsterdam the first laboratory for experimental parapsychology. In particular, he aimed at elucidating the relation between biology and psychology, and considered parapsychological phenomena an important link between the two (Kramer 2006). In the course of conducting his experimental tests, Jansen tested in total about 120 persons. He reported at length on the results of the first 83 persons, 54 men and 29 women aged between 18 and 60 years. He concluded that 13 persons proved to be able to correctly distinguish the periods in which an electromagnet was activated or not by perceiving visual impressions at its poles. Jansen ensured that the methodological and experimental setup could be reliably controlled, and implemented a completely automated test procedure. The test persons sat alone on a chair in a totally darkened room, a pole of the electromagnet positioned at eye level about 70 centimeters in front of them. The magnet was switched on and off in irregular intervals by an automated device in the adjacent control room of the laboratory. Because Jansen himself was not aware of the on–off intervals during a given trial, it was possible to exclude telepathic influence as a potential means of affecting the reactions of test persons. The test person was to press a button when he or she perceived a visual impression around the electromagnet. The signals of both channels, the one recording the on/off state of the magnet and the other recording the response given by the test person by pushing the button, were automatically recorded. The graphs

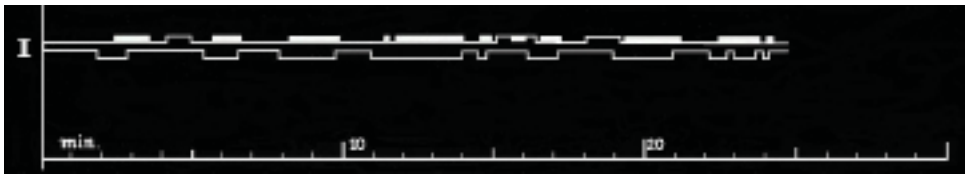

Figure 2. Automated recording of a sitting with a sensitive of Jansen's (1907). The line at the bottom is the time scale in minutes. The middle line shows the status of an electromagnet that was switched on and off in irregular intervals with an automated device, the dropping of the line indicating the excited state. The magnet was positioned in a dark room with the sensitive person who pressed a button when he thought he perceived a visual impression (upper line). The white blocks indicate that he perceived an impression, and they correspond well to the states of the excited electromagnet.
The figure was digitally revised by M. Nahm.

of a trial with one of his best test subjects are displayed in Figure 2. The patterns of the two lines show a notable parallelism, indicating that the man was able to perceive if the electromagnet was active or not after a certain "reaction time" (Jansen 1907). Unfortunately, Jansen was forced to give up his laboratory in 1908 due to severe financial strains. He could not continue with his promising experiments, and could not even issue the detailed report he was intending to publish (Kramer 2006).

After this largely unknown study by Jansen, attempts to replicate Reichenbach's experiments with magnets became even rarer. In Mexico, Gustav Pagenstecher (1924) reported on experiments with a woman who reacted sensitively to a magnet, and who gave descriptions of bipolar luminous phenomena around humans in the dark similar to those described by the sensitives of von Reichenbach. Rudolf Tischner (1950) reported successful experiments with a woman who reliably detected water treated by his hands, but mentioned in passing that persons he tested in dark rooms were not able to perceive luminous appearances around crystals and plants. Yet, it is of interest that reports of unusual observations that von Reichenbach would have claimed to be of odic origin continue to be published occasionally. For example, Owen (1972) reported that five witnesses had independently and simultaneously observed a luminous aura or a kind of blurring of the air around a dowsing rod which was the focus of intense concentration of two psychic persons. This unexpected observation was made in full light. The experiment was successfully repeated with different persons who were not informed about the nature of the event, but the luminous appearance

around the dowsing rod was not visible on a photograph taken. And, like so often before, the way the experiment was performed did not entirely exclude the possibility that suggestion or even telepathic influences among the participants played a role in generating these visual impressions. Only recently, Göte Andersson (2009) has published a summary of experiments he had performed with a Swedish boy named Pontus who was able to reliably distinguish the two different poles of magnets, even in double-blind test settings. To Pontus, the two poles of magnets seemed to emit differently colored light, and he reported similar emanations around humans. He has stated that the experiments of von Reichenbach and his successors came to his knowledge no earlier than spring 2010 (Göran Brusewitz, personal communication with Andersson on March 6, 2011).[9]

Concluding Remarks

In this paper, I have reviewed important stages of Karl von Reichenbach's life and some of his findings related to the supposedly universal force he termed Od. Although many of his findings are likely to be attributed to inadequate experimental protocols and performances that may have allowed for self-deception and suggestion, if not fraud, it might be too early to conclude that *all* of his findings can be attributed to these factors. If von Reichenbach's experiments concerning unusual visual perception in complete darkness could be replicated with modern equipment and would yield positive results, they would provide important clues for a better understanding of the nature and functioning of our senses, and perhaps also of the *aura* that some people claim to see around human beings and objects. Moreover, should some persons indeed be able to turn compass needles simply by nearing their fingers, assessing the detailed circumstances might also constitute an important step forward toward understanding peculiar motor abilities long attributed to some human beings. Such findings would also indicate that certain aspects of historical concepts on (human) radiations and forces might still be of relevance today, and would serve as a reminder that other treasures might also be unearthed in the writings of numerous pioneers who explored border areas of science in the past.

Acknowledgments

I am grateful to Wim Kramer for his help by providing me with a copy of his presentation about the laboratory of Floris Jansen (Kramer 2006), a copy of the original paper by Jansen (1907), and a personal explanation of the details of the experimental setup that Jansen had established in his laboratory to perform his automated tests. I also wish to thank Göran

Brusewitz for summarizing from the original Swedish source the basics of the experiments performed by Göte Andersson with Pontus. Likewise, I am grateful to Kaare Claudewitz for a summary of the compass experiments that were performed with Franek Kluski in 1924, derived from a Polish original source, and for providing relevant references. Finally, I thank Carlos S. Alvarado and Andreas Sommer for helpful comments on this manuscript.

Notes

[1] In the English-speaking countries, the Od became also known as *Odyle* following the influential translation of von Reichenbach's first book into English by William Gregory, a professor of chemistry in Edinburgh (von Reichenbach 1850)

[2] Feerhow is a pseudonym and an anagram of (Friedrich) Wehofer.

[3] Fritz Grunewald (1920) has designed a similar table and reported remarkable success, but these intriguing experiments have to my knowledge so far not been replicated by the groups that have experimented with table turning more recently.

[4] Zöllner, who published under his third forename Friedrich, ranked among the most respected and innovative scientists in Germany. When he started experimenting with Slade, he was searching for experimental verification of his theory concerning a fourth spatial dimension. Slade was reported to be able to provoke numerous large-scale paranormal phenomena under conditions of good light. When Zöllner reported successful experiments with Slade, he was portrayed as being insane by influential academics. Rumors of fraud had also been put forward by critics of Slade, but were hardly substantiated. For brief summaries of the experiments Zöllner performed with Slade see Inglis (1992) or Randall (1982), for an extensive compilation of the original reports written by Zöllner about his experiments with Slade and a commentary about his critics see Tischner (1922).

[5] Stanislava Tomczyk was extensively studied by French researcher Julian Ochorowicz, and also by Albert von Schrenck-Notzing in Germany (von Schrenck-Notzing 1920). Probably the most frequently discussed phenomena reported with her are controlled levitations of small objects in full light. Franek Kluski, his real name being Teofil Modrzejewski, was particularly known for the human limbs and animals that were reported to materialize during his sittings, but he also seemed to possess mental psychic abilities. For an overview on Kluski's mediumship see Weaver (1991–1992), for often-discussed original reports of sittings with Kluski see Geley (1924/1927).

[6] Indeed, the first edition of his book (Haddock 1849) contained no reference to von Reichenbach. Haddock only described that his subject was able to clairvoyantly locate a magnet, and that she perceived objects in "bright light" when in the somnambulant state.

[7] Even today, Home ranks among the most important mediums for physical mediumship. He usually worked under conditions of full light, and numerous high-ranking witnesses voted for the genuineness of his phenomena. For an overview on the mediumship of Home, see Braude (1997).

[8] Although many experiments aimed at assessing the ability of humans to consciously and directly detect (electro-) magnetic fields have yielded negative results in the past, the recent literature on possible and largely unconscious influences of electromagnetic fields on organisms of humans and animals is vast (for a brief review, see Brusewitz 2010).

[9] It should also be mentioned that there have been numerous efforts to obtain photographic imprints of odlight. However, it is safe to state that odlight from even powerful magnets has never been photographed when the conditions were sufficiently rigid. A late experiment often regarded as decisive was performed by the fourth Lord of Rayleigh (1938–1939). He used highly sensitive photographic plates which were not affected by the magnet even after an exposure of 150 days. However, in contrast to the unsuccessful attempts to catch the odlight of magnets on photographic plates, the literature on human emanations and fluids contains numerous reports in which such emanations were seemingly captured on plate, mostly protruding from hands (for examples see Aigner 1921, Feerhow 1914, Krauss 1995, Ochorowicz 1911–1912, 1912). In addition, unexplained lights emanating from human bodies have apparently been recorded on film or photographs on occasion (Alvarado 1987, Schimberg 1947).

References

Aigner, E. (1921). Eine unaufgeklärte Einwirkung der menschlichen Hand auf die photographische Platte. *Psychische Studien*, *48*, 558–562.

Alvarado, C. S. (1987). Observations of luminous phenomena around the human body: A review. *Journal of the Society for Psychical Research*, *54*, 38–60.

Alvarado, C. S. (2008). Further notes on historical ideas of human radiations: II. Od and psychometry. *Psypioneer*, *4*, 63–70.

Andersson, G. (2009). *Psi-Sparet II och Okända Energisystem i och Runt Levande Varelser* [*Psi Track II and Unknown Energy Systems in and around Living Beings*]. Stockholm: Författares Bokmaskin.

Anonymous (1871). *Report on Spiritualism of the Committee of the London Dialectical Society*. London: Longmans, Green, Reader, & Dyer.

Bähr, J. K., & Kohlschütter, R. (1843). *Mittheilungen aus dem Magnetischen Schlafleben der Somnambüle Auguste K. in Dresden*. Dresden/Leipzig: Arnold.
Baldwin, D. (2006). *The Odic Energy. Physics of Consciousness and the Paranormal*. Lyons, CO: Odic Energy Research Institute.
Barrett, W. F. (1883). Note on the alleged luminosity of the magnetic field. *The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science, 15*, 270–275.
Barrett, W. F. (1884). Note on the existence of a "magnetic sense." *Proceedings of the Society for Psychical Research*, *2*, 56–60.
Barrett, W. F. (1886). Der magnetische Sinn. *Sphinx*, *1*, 225–235.
Barrett, W. F., & Collaborators (1882–1883). First report of the 'Reichenbach' committee, *Proceedings of the Society for Psychical Research*, *1*, 230–237.
Bauer, A. (1907). Erinnerungen an den Freiherrn von Reichenbach. *Psychische Studien*, *34*, 489–498.
Beecher, C. (1853). *A Review of the "Spiritual Manifestations."* New York: Putnam.
Billing, S. (1879). *Scientific Materialism and Ultimate Concepts*. London: Bickers and Son.
Bischof, M. (1995). *Biophotonen. Das Licht in unseren Zellen*. Frankfurt am Main: Zweitausendeins.
Braid, J. (1970). The power of the mind over the body. In M. M. Tinterow (Ed.), *Foundations of Hypnosis*, Springfield, IL: Thomas, pp. 331–364. [First published 1846]
Braude, S. E. (1997). *The Limits of Influence.* Lanham, MD: University Press of America.
Brittan, S. B., & Richmond, B. W. (1853). *A Discussion of the Facts and Philosophy of Ancient and Modern Spiritualism*. New York: Partridge & Britton.
Brusewitz, G. (2010). *Conscious Connections*. Saarbrücken: VDM Verlag Dr. Müller.
Büchner, L. (1854). *Das Od. EineWwissenschaftliche Scizze*. Darmstadt: Diehl.
Büchner, L. (1855). *Kraft und Stoff*. Frankfurt am Main: Meidinger.
Burdach, K. F. (1840). *Die Physiologie als Erfahrungswissenschaft*, Volume 6. Leipzig: Voss.
Capron, J. R. (1879). *Aurorae: Their Character and Spectra*. London: Spon.
Capron, R. (1884). The magnetic glow. *Journal of the Society for Psychical Research*, *1*, 83.
Charpignon, J. (1848). *Physiologie, Médecine et Metaphysique du Magnétisme*. Paris: Germer Baillière.
Cross, H. H. U. (1939). *A Cavalcade of the Supernatural*. New York: Dutton.
Crowe, C. (1848). *The Night-Side of Nature,* two volumes. London: Newby.
de Chastenet de Puységur, A. M. J. (1811). *Recherches, Expériences et Observations Physiologiques sur l'Homme dans l'État de Somnambulisme Naturel, et dans le Somnambulisme Provoqué par l'Acte Magnétique*. Paris: Dentu.
de Rochas, A. (1906). *L'Extériorisation de la Motricité,* fourth edition. Paris: Chacornac.
de Rochas, A. (1909). *Die Ausscheidung des Empfindungsvermögens*. Leipzig: Max Altmann. [First published in French 1895]
du Prel, C. (1899). *Die Magie als Naturwissenschaft*, two volumes. Jena, Germany: Costenoble.
Durville, H. (1912). *Die Physik des Animal-Magnetismus*. Leipzig: Max Altmann. [First published in French 1895–1896]
Erdbeer, R. M. (2008). Epistemisches Prekariat. Die qualitas occulta Reichenbachs und Fechners Traum vom Od. In D. Rupnow, V. Lipphardt, J. Thiel, & C. Wessely (Eds.), *Pseudowissenschaft*, Frankfurt am Main: Suhrkamp.
Fechner, G. T. (1856). *Professor Schleiden und der Mond*. Leipzig: Adolf Gumprecht.
Fechner, G. T. (1876). *Erinnerungen an die Letzten Tage der Odlehre und Ihres Urhebers*. Leipzig: Breitkopf und Härtl.
Feerhow, F. (1914). *Eine Neue Naturkraft Oder eine Kette von Täuschungen?* Leipzig: Max Altmann.
Ferzak, F. (1999). *Karl Freiherr von Reichenbach*. Neuenhinzenhausen, Germany: FFWASP.
Geley, G. (1927). *Clairvoyance and Materialisation: A Record of Experiments*. London: Fisher Unwin. [Original work published in French 1924]

Gouge, A. (1846). Beiträge zur Lehre vom Magnetismus. *Zeitschrift der k. k. Gesellschaft der Aerzte zu Wien*, *3*(8&9), 1–199.
Grunewald, F. (1920). *Physikalisch-Mediumistische Untersuchungen*. Pfullingen, Germany: Johannes Baum.
Grunewald, F. (1922). Ferromagnetische Erscheinungen am Menschen. *Psychische Studien*, *49*, 65–83.
Haddock, J. W. (1849). *Somnolism and Psycheism*. London: Hodgson.
Haddock, J. W. (1851). *Somnolism and Psycheism*, second edition. London: Hodgson.
Harnack, E. (1905). *Studien über Hautelektrizizät und Hautmagnetismus des Menschen*. Jena, Germany: Gustav Fischer.
Hasted, J. (1981). *The Metal-Benders*. London: Routledge & Kegan Paul.
Heineken, P. (1818). Geschichte einer merkwürdigen Entzündungskrankheit des Unterleibes mit dem Charakter der Exsudation. *Archiv für den Thierischen Magnetismus*, *2*(3), 3–71.
Hess, O. (1935). *Die Mediumschaft von Heinrich Melzer*. Leipzig: Mutze.
Honorton, C. (1974). Apparent psychokinesis on static objects by a "gifted" subject. *Research in Parapsychology*, *1973*, 128–131.
Ingensiep, H. W. (2001). *Geschichte der Pflanzenseele*. Stuttgart: Alfred Kröner.
Inglis, B. (1992). *Natural and Supernatural*. Bridport, UK: Prism Press.
Jansen, F. (1907). Reichenbach onderzoekingen [Reichenbach studies]. *Driemaandelijksche Verslagen van het Psychopysisch Laboratorium te Amsterdam*, *1*, 33–39, 123–132.
Jastrow, J., & Nuttall, G. F. H. (1886). On the existence of a magnetic sense. *Proceedings of the American Society for Psychical Research*, *1*, 116–126.
Keil, H. H. J., Herbert, B., Ullman, M., & Pratt, J. G. (1976). Directly observable voluntary PK effects: A survey and tentative interpretation of available findings from Nina Kulagina and other known related cases of recent date. *Proceedings of the Society for Psychical Research*, *56*, 197–235.
Kramer, W. (2006). *100 years ago: The first laboratory for experimental parapsychology*. Symposium of the Wissenschaftliche Gesellschaft zur Förderung der Parapsychologie [Society for the Advancement of Parapsychology]; 03 November 2006; Offenburg, Germany.
Krauss, R. H. (1995). *Beyond Light and Shadow*. Munich: Nazraeli.
Kröner, W. (1938). *Die Wiedergeburt des Magischen*. Leipzig: Hummel.
Lee, E. (1866). *Animal Magnetism and Magnetic Lucid Somnambulism*. London: Longmans, Green, and Co.
Lindsay, J. L. (1871). Reichenbach's magnetic flames, and the levitation of the human body. *Spiritualist*, *1*, 177.
Marchant, J. (1916). *Alfred Russel Wallace: Letters and Reminiscences*, two volumes. London: Cassell & Co.
Mattuck, R. D. (1977). PK effect on a clinical thermometer with a Danish "Mini-Geller" girl. *Research in Parapsychology*, *1976*, 20–21.
Neumann, A. C. (1857). *Kurzer Abriss der Odlehre*. Leipzig: Förstnersche Buchhandlung.
Ochorowicz, J. (1909). Un nuoveau phénomène médiumnique. *Annales des Sciences Psychiques*, *19*, 97–106.
Ochorowicz, J. (1911–1912). Radiographies des mains. *Annales des Sciences Psychiques, 21*, 295–299, 334–341; *22*, 1–8.
Ochorowicz, J. (1912). Les mains fluidiques et la photographie de la pensée. *Annales des Sciences Psychiques*, *22*, 97–104, 147–153, 164–170, 204–209, 232–240.
Okolowicz, N. (1925). Doswiadczenia medjum F. Kluskiego z igla magnetyczna [Experiments with the medium F. Kluski and the magnetic needle]. *Zagadnienia Metapsychiczne [Metapsychic Issues]*, *4*, 222–228.
Owen, A. R. G. (1972). Generation of an "aura": A new parapsychological phenomenon. *New Horizons*, *1*, 9–23.

Owen, A. R. G. (1974). A preliminary report on Matthew Manning's physical phenomena. *New Horizons*, *1*, 172–173.
Owen, A. R. G., & Whitton, J. L. (1974). Report on demonstrations and experiments performed during the [first Canadian] conference [on psychokinesis]. *New Horizons*, *1*, 191–251.
Pagenstecher, G. (1924). *Aussersinnliche Wahrnehmung*. Halle, Germany: Marhold.
Pickering, W. H. (1886). Research on the reality of Reichenbach's flames. *Proceedings of the American Society for Psychical Research*, *1*, 127.
Quade, F. (1924) *Odlehre (Odik)*. Pfullingen, Germany: Baum.
Randall, J. L. (1982). *Psychokinesis*. London: Souvenir Press.
Rayleigh, L. (1938–1939). The question of lights supposed to have been observed near the poles of a magnet. *Proceedings of the Society for Psychical Research*, *45*, 19–24.
Rogers, E. C. (1853). *Philosophy of Mysterious Agents, Human and Mundane*. Boston, MA: Jewett.
Röthy, K. (1936). Starke elektrische Ausstrahlungen des menschlichen Körpers. *Zeitschrift für metapsychische Forschung*, *7*, 129–130.
Schimberg, A. P. (1947). *The Story of Therese Neumann*. Milwaukee, WI: Bruce.
Schindler, H. B. (1857). *Das Magische Geistesleben: Ein Beitrag Zur Psychologie*. Breslau: Korn.
Schrötter, A. (1869). Karl Ludwig Reichenbach. *Almanach der Kaiserlichen Akademie der Wissenschaften*, *19*, 326–369.
Scofield, A. M., & Hodges, R. D. (1991). Demonstration of a healing effect in the laboratory using a simple plant model. *Journal of the Society for Psychical Research*, *57*, 321–342.
Stewart, D. (1884). Further experiments on the alleged effect of magnetism on the human body. *Journal of the Society for Psychical Research*, *1*, 112–113.
Tanagra, A. (1932). Die Natur der telekinetischen Energie. *Zeitschrift für Parapsychologie*, *7*, 195–198.
Tanagra, A., Walther, G., & Herbert, B. (1972). The psychokinesis of Cleio. *Journal of Paraphysics International*, *6*, 92–98.
Thorsen, P. (1950). *Människans okände krafter* [*Man's Unknown Powers*]. Stockholm: Litteraturförlaget.
Tischner, R. (Ed.) (1922). *Vierte Dimension und Okkultismus*. Leipzig: Mutze.
Tischner, R. (1950). *Ergebnisse okkulter Forschung*. Stuttgart: Deutsche Verlags-Anstalt.
Vogel, H. (1863). Die Odtheorie und die Sensitiven. *Die Gartenlaube*, *40*, 633–636.
Vogt, C. (1854). *Physiologische Briefe für Gebildete aller Stände* (second edition). Giessen, Germany: Ricker.
von Liebig, J. (1852). *Ueber das Studium der Naturwissenschaften: Eröffnungsrede zu seinen Vorlesungen über Experimental-Chemie*. Munich: Cotta.
von Rechenberg-Linten, P. (1921), Ablenkung der Magnetnadel durch die Hand, *Psychische Studien*, *48*, 295–302.
von Reichenbach, C. (1851). *Physico-Physiological Researches on the Dynamics of Magnetism, Electricity, Heat, Light, Crystallization, and Chemism, in their Relation to Vital Force*. New York: J. S. Redfield. [Translated from the German edition (1849) and commented on by John Ashburner]
von Reichenbach, K. (1845). Untersuchungen über den Magnetismus und damit verwandte Gegenstände. *Annalen der Chemie und Pharmacie*, *53*, (Supplement 1), 1–108, (Supplement 2), 125–270.
von Reichenbach, K. (1849). *Physikalisch-Physiologische Untersuchungen über die Dynamide des Magnetismus, der Elektrizität, der Wärme, des Lichtes, der Krystallisation, des Chemismus in ihren Beziehungen zur Lebenskraft*, two volumes. Braunschweig, Germany: Friedrich Vieweg und Sohn.
von Reichenbach, K. (1850). *Researches on Magnetism, Electricity, Heat, Light, Crystallization, and Chemical Attraction in their Relations to the Vital Force*. London: Taylor, Walton, and

Maberly. [Translated from the German edition (1849) and commented on by William Gregory]
von Reichenbach, K. (1852). *Odisch-Magnetische Briefe*. Stuttgart/Tübingen: Cotta.
von Reichenbach, K. (1854–1855). *Der sensitive Mensch und Sein Verhalten zum Ode*, two volumes. Stuttgart/Tübingen: Cotta.
von Reichenbach, K. (1855). *Köhlerglaube und Afterweisheit: Dem Herrn C. Vogt in Genf zur Antwort*. Vienna: Braumüller.
von Reichenbach, K. (1856). *Odische Erwiederungen an die Herren Professoren Fortlage, Schleiden, Fechner und Hofrath Carus*. Vienna: Braumüller.
von Reichenbach, K. (1858). *Die Pflanzenwelt in ihren Beziehungen zur Sensitivität und zum Ode*. Vienna: Braumüller.
von Reichenbach, K. (1866). *Aphorismen über Sensitivität und Od*. Vienna: Braumüller.
von Reichenbach, K. (1867). *Die Odische Lohe und Einige Bewegungserscheinungen als Neuentdeckte Formen des Odischen Princips in der Natur*. Vienna: Braumüller.
von Schrenck-Notzing, A. (1891). Einiges über die Schicksale der Odlehre. In K. von Reichenbach, *Ein schwerer Sensitiv-Somnambuler Krankheitsfall Geheilt Ausschliesslich mittelst Einfacher Anwendung der Gesetze des Odes; hrsg. und mit Besonderer Berücksichtigung der Suggestionslehre Bearb. von A. Freiherrn von Schrenck-Notzing*. Leipzig, Germany: Abel.
von Schrenck-Notzing, A. (1920). *Physikalische Phänomene des Mediumismus*. Munich: Reinhard.
von Wurzbach, C. (1873). *Biografisches Lexikon des Kaiserthums Oesterreich*, *25*, 169–177.
Watkins, G. K., & Watkins, A. M. (1974). Apparent psychokinesis on static objects by a "gifted" subject: A laboratory demonstration. *Research in Parapsychology*, *1973*, 132–134.
Weaver, Z. (1991–1992). The enigma of Franek Kluski. *Journal of the Society for Psychical Research*, *58*, 289–301.
Zeller, G. (1925). Ablenkung der magnetnadel durch bisher unbekannte Kräfte des menschlichen Organismus. *Revalo Bund*, *1*, 375–380.
Zöllner, F. (1878). *Wissenschaftliche Abhandlungen*, Volume 2. Leipzig: Staackmann.