

OBSERVATIONS OF LUMINOUS PHENOMENA AROUND THE HUMAN BODY: A REVIEW

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ABSTRACT

A review is presented of luminous phenomena seen around the human body. Cases reported with mediums, mystics and saints, dying persons, and other individuals are described. The discussion includes considerations of the evidential aspects of the cases, circumstances and characteristics of the reports, and some theoretical concepts that have been offered to explain the observations. Although some cases are consistent with some explanations, the bulk of the proposed explanations are unsupported speculations. Suggestions for further research include the exploration of psychological factors in the percipient, medical and physiological parameters of the person around whom the light is seen, and attempts to study physical aspects of the phenomena.

Mysterious and unexplained luminous phenomena have fascinated human-kind since ancient times (e.g., Corliss, 1982; Gaddis, 1967; Harvey, 1957; Rochas, 1911). The psychical research literature offers a variety of examples of unexplained luminous phenomena such as reports of glows seen around magnets, crystals and minerals (e.g., Reichenbach, 1851), lights reportedly seen with mediums (e.g., Ochorowicz, 1909), wandering 'spirit' lights (e.g., Layne, 1940), and luminous apparitions (e.g., Gurney, Myers, & Podmore, 1886, Vol. 1, pp. 444, 561-562, Vol. 2, pp. 46, 460), among others.

This paper will focus on observations of luminous phenomena around the human body. To limit the topic, I will only discuss cases in which the body itself, or its immediate surroundings (within about a foot of the body), have been reported to glow or emit some type of light. Only luminous effects visible by apparently normal means (although this is difficult to determine in many of the cases discussed here) will be considered. Under these limitations the following are excluded:

(1) the detection of invisible radiations emanating from the body by means of photographic plates (e.g., Baraduc, 1897; Ochorowicz, 1910),² and various other detection devices reported in the parapsychological literature (e.g., Dobrin, Kirsch, Kirsch, Pierrakos, Schwartz, Wolff & Zeira, 1979; Karolyi, Nandagopal

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² The literature of photographic detection of invisible 'paranormal' human radiations is vast and controversial. Montandon (1927) presents a positive (perhaps not too critical) perspective, while Fontenay (1911-1912) assumes a more negative and skeptical point of view.

& Wigg, 1983), as well as the use of ultraviolet light in the medical literature (e.g., Essén & Lindahl, 1953; Macdonald & Margolese, 1950).

(2) auras seen only by 'gifted' persons (e.g., Garrett, 1968; Karagulla, 1967), or through specific techniques or devices (e.g., Bagnall, 1970; Kilner, 1920); and

(3) the observations of luminous emanations from the body made by hypnotized persons in the old hypnosis literature (e.g., Luys, 1892; Rochas, 1894).

The cases and observations that follow will be discussed under the following headings; (1) mediums, (2) mystics and saints, (3) dying persons, and (4) other cases. No attempt is made here to prove either the 'reality' or the paranormality of the cases, since most reports are merely anecdotal and provide meager details. My purpose in this paper is to show the types of cases available in the literature, to review some explanations proposed in the past, and to suggest ideas for further research.

CASES OF ANOMALOUS HUMAN LUMINOUS PHENOMENA

Mediums

The report of different types of luminous manifestations seems to be common with many physical mediums of the past (for reviews see: Curnow, 1925, pp. 14-21; Geley, 1922, 1927, pp. 347-358; González Quevedo, 1971, Vol. 1, pp. 59-77; Montandon, 1927, pp. 84-109; Ochorowicz; 1909; Richet, 1923, pp. 478-483; and Zimmer, 1923).

D. D. Home was reported to produce many striking luminous phenomena. In one seance Dunraven (1924) observed that one of Home's hands 'became quite luminous' (p. 68), and that two persons 'saw tongues or jets of flame proceeding from Home's head' (p. 157). On another occasion:

He was elongated³ slightly . . . and raised in the air; his head became quite luminous at the top, giving the appearance of having a halo round it. When he was raised in the air, he waved his arms about, and in each hand there came a little globe of fire (to my eyes blue) . . . (p. 161).

Similar observations were made with Eusapia Palladino.⁴ Several observers noticed flames or spark-like emanations from Eusapia's body. Lombroso (1909) mentioned 'firefly-like bluish gleams' (p. 55) above her head, while Bottazzi (1907) saw violet flames that 'seemed to disengage themselves from the body of the medium, [and] then rose with a slow undulating movement, dissolving into space' (p. 383).

D'Arsonval and Marie Curie, well known French scientists who had sittings with Eusapia during the series of seances she held for the Institut Général Psychologique of Paris between 1905-1908, observed something like a 'luminous aureole' around her head. In d'Arsonval's words: 'The phenomenon was similar

³ The phenomenon of *elongation*, in which the body is supposed to stretch or expand beyond its normal size, has also been reported with other mediums (Holms, 1925, pp. 317, 320) and with mystics and saints (Thurston, 1936).

⁴ To my knowledge, Eusapia Palladino was never found trying to produce luminous phenomena by trickery. However, there is plenty of evidence of fraud regarding some of her other phenomena (e.g., Courtier, 1908, pp. 523-525; Feilding, Baggally & Carrington, 1909, p. 383; Flammarion, 1907, pp. 110, 203).

to the light emitted in darkness by a conductor charged with electricity.⁵ Around her head was some kind of a dark zone followed by a luminous zone similar to the dark cathodic space of the discharge from a Crookes' tube' (Courtier, 1908, p. 559, my translation). D'Arsonval stressed that before the seance in which that observation was made he searched the medium for any phosphorescent material she may have prepared to simulate luminous phenomena.

Morselli (1908) also reports observations of luminous phenomena with Eusapia in seances conducted in 1907. In one of them Morselli observed a whitish nebulous form above the medium's head 'disposed horizontally, as if a vague luminosity, slightly phosphorescent, emanated from all the medium's body . . . It vanished after 15 or 20 seconds' (vol. 2, p. 389, my translation).

Probably the most interesting observation was made with the Austrian medium Maria Silbert,⁶ around whom unexplained flashes of light were frequently reported (Bond, 1923). Father Huberto Rohden (1962, vol. 1) reports that in a 1926 seance with Silbert (while Rohden was a student at the University of Innsbruck) Maria Silbert, as soon as she fell into a trance, became:

all luminescent, radiating a soft, phosphorescent, somewhat greenish emanation like moonlight . . . From her fingertips, elbows and knees, come out, from time to time, stronger glimmers, beams that spread out in space. To appreciate better the luminosity, we would turn off the electric light, and all the living room was immersed in the suggestive light coming from the medium's body. (p. 55, my translation)

Rohden mentions that some apparatus (described only as manometers) were put near the luminous radiation, where they detected some energy. He also recorded the following interesting observation:

After much brightness, the beautiful phosphoric radiance slowly lost brilliancy, and when it was close to extinction the medium felt so weak that she almost fainted—and the pointers of our manometers went down to zero. However, the slightest contact with the hand of one of the observers was enough for the light to revive quickly. (p. 56, my translation)⁷

Rohden interprets this as evidence of a 'transfusion of magnetic fluids from a stronger battery to a weaker one' (p. 56, my translation), and emphasizes that

⁵ Ochorowicz (1909, p. 279) disagrees with this comparison, pointing out some differences between this phenomenon as observed with Eusapia and the appearance in darkness of a conductor charged with electricity.

⁶ Besterman (1929) records some suspicious observations suggestive (but not conclusive) of fraud with Silbert. Similar observations and accusations of fraud (second hand) are summarized by Dingwall (1924). H. Price (1939, p. 84) claims to have detected the medium in fraud. See also a short article by Lambert (1931).

⁷ Describing observations related to lights seen around the medium William Stainton Moses, Dr. S. T. Speer noticed that passes made over dim lights renewed their power, and that this 'seemed to be more easily and fully developed when I rubbed my hands together or on my coat' (Myers, 1893, pp. 275-276). In this context, though not specifically related to lights, it is of interest to notice Rudi Schneider's passes around a sitter's body to get 'power' (e.g., Price, 1926, p. 648), and the stamping and rubbing activities of the Winnipeg group mediums to 'release' forces for the production of physical phenomena (Hamilton, 1934, p. 119).

the medium 'instinctively' would almost always touch the two youngest persons of the group, presumably because of their stronger psychic energy.⁸

For other examples of luminous phenomena occurring in the context of mediumistic seances see: Geley (1927, pp. 290–292, 349–359) and White (1937, pp. 267, 272–275, 280, 282, 285–286, 290–291).

*Mystics and Saints*⁹

Luminous phenomena around the bodies of saints and mystics have been recorded since ancient times, as seen in the reviews of Christian literature published by Blasucci (1976), Görres (1854, pp. 61–93), Ribet (1895, pp. 593–603), and Thurston (1934). I will mention only a few examples here.

There are many short references to 'luminous saints' such as the description of St. Filippo Neri as 'all resplendent' (Incisa della Rocchetta, Vian, with Gasbarri, 1957, p. 16) and the Queen of Aragón's observation that St. Vicente Ferrer was seen 'surrounded with so much divine light, that she could see well all the details of his [dark] cell' (Antift, 1956, p. 149, my translation).

Many interesting observations of the illumination of St. Teresa de Jesús' face were recorded in the process of her canonization and beatification (for a review see Leroy, 1959). Ana de Bartolomé, a nun who was a nurse and close companion of St. Teresa declared that she saw her two times with her face illuminated. On one occasion St. Teresa was sleeping, and the witness sat at her side until she woke up, noticing an odour of 'relics' coming out from her.¹⁰ On another occasion, 'this witness saw that [the light from Teresa's face] illuminated all the chapter house . . ., but [does not] know if the other sisters were seeing it . . .' (Silverio de Santa Teresa, 1934, p. 135, my translation). Another interesting account is given by another nun, Ana de la Encarnación, who observed St. Teresa one time while she was writing her well-known book *Las Moradas*. As the nun declared:

One night . . . I saw from her cell's door, where I was waiting to see if she wanted something, that her face had a clear light, and from her came out glimmers like golden rays, and this lasted and I saw it for an hour's time . . . [When she stopped writing] the radiance went away, and it seemed she was in darkness as compared to when she was with the radiance. (Silverio de Santa Teresa, 1915, p. xiii, footnote, my translation)

Similar observations were made in connection with the Curé d'Ars. In 1849 Marie Roch came to see the Curé for confession. After a long delay she came close to the confessional and, according to Trochu's (1927) account, when she saw the Curé in the darkness of the confessional: 'The holy priest's face seemed to project two fiery rays, his features being completely hidden by the brightness of their light . . . Mlle. Roch gazed at it for at least eight or ten minutes, when it still shone with undimmed radiance' (pp. 530–531).

⁸ For a discussion of the concept of transference of paranormal energies between persons see Giacometti (1948).

⁹ Cases of mystics and saints are the only ones included in the paper from religious contexts. I have not attempted to survey demonic (or other types of) possession phenomena literature. I am acquainted with only one (second hand) report of this type (Crabtree, 1985, p. 103), which I owe to Patric V. Giesler.

¹⁰ For other cases of the so-called 'odour of sanctity' see Thurston (1920).

N. A. Motovilov (1948), a noble squire healed by the Russian mystic Seraphim of Sarov, describes striking luminous manifestations that he saw with Seraphim. In answer to Motovilov's question as to how he could recognize the true manifestation of God's spirit, Seraphim grabbed him by the shoulders and said they were both at that moment in the spirit of God. Motovilov could not look directly into Seraphim's face because of the great brightness emanating from it. As he wrote:

Imagine in the center of the sun, in the dazzling brilliance of his midday rays, the face of the man who talks with you. You see the movement of his lips and the changing expression of his eyes, you hear his voice, you feel someone grasp your shoulders; yet you do not see the hands, you do not even see yourself or his figure, but only a blinding light spreading several yards around and throwing a sparkling radiance across the snow blanket on the glade and into the snowflakes which besprinkled the great elder and me. (pp. 274-275)

The experience was accompanied with feelings of great calm and peace suggestive of a mystical experience.

Other accounts come from non-Christian traditions. Huart (1918) presents, in his compilation of Persian hagiographic documents translated into French, some accounts of luminous phenomena with mystics of the Islamic tradition. Brief descriptions of luminous phenomena can be found in the writings about mystics Abu'Absallah Muhammad b. Ashraf Al-Rundi (Austin, 1971, p. 118), Abu Ahmad Al-Salawi (Austin, 1971, p. 127), Rabc's a al-Adawiya (al-Din Attar, 1966, pp. 42, 46), and Saiyedena Hazrat Ghaus-ul-Azam (Salik, 1961, p. 63).

Erlendur Haraldsson has collected a variety of accounts of luminous and other apparent paranormal phenomena produced by the contemporary Indian mystic Sathya Sai Baba, who claims to be an Avatar. The following is one of the most dramatic accounts of luminous phenomena allegedly produced by Sai Baba, as recorded in the diary of one of his devotees some time in the 1940s:

All devotees had gathered at the bottom of the hill and were watching him. Already it was sunset . . . Sai Baba could be seen by all from there. Behind his head bright red rays, which resemble the rays of sunset, were shining. After some time, they disappeared and were replaced by a bright powerful light that was emanating crores [tens of millions] of blinding sunrays and that was glistening like a diamond on the head of a snake. Looking at it, unable to tolerate the brightness, two persons collapsed to the ground. All the people were staring with wide open eyes, overwhelmed with joy. Immediately the light disappeared and there was pitch darkness.¹¹

Dying Persons

There are many reports on record of observations made by bystanders of deathbeds at which emanations such as clouds, lights and other shapes were seen coming out of or moving around the dying person's body (for reviews of some cases see Bozzano, 1937, pp. 126-135; and Muldoon and Carrington, 1951, pp.

¹¹ I am grateful to Erlendur Haraldsson for his permission to use this account, which will appear in his forthcoming book on Sai Baba's alleged psychic phenomena.

104–105, 107–109). For purposes of this paper I will focus only on some of the luminous phenomena observed close to the body.

Several accounts of luminous phenomena in dying persons were published in 19th century medical literature (Huggins, 1845; Marsh, 1842; Watson, 1845; Wood, 1844). One of the most interesting is that reported by Marsh (1842), who observed a dying woman for some time. As he wrote:

After she settled [in] for the night I lay down beside her, and it was then that this luminous appearance suddenly commenced. Her maid was sitting up beside the bed, and I whispered to her to shade the light, as it would awaken Louisa [the patient]. She told me the light was perfectly shaded . . . The maid . . . informed me she had seen that light before . . . After watching it myself half an hour, I got up and saw that the candle was in a position from which this peculiar light could not have come, nor indeed, was it like that sort of light; it was more silvery, like the reflection of moonlight on water. I watched it for more than an hour, when it disappeared. It gave the face the look of being *painted white* and *highly glazed*, but it danced about . . . Her sister came into the room and saw it also. The evening before L.A. died I saw the light again, but it was fainter and lasted but about twenty minutes. The state of the patient was that of extreme exhaustion . . . Her breath had a very peculiar smell, which made me suppose there might be some decomposition going forward. (p. 170)

More impressive accounts can be found in later spiritualist publications. In a case reported by Tweedale (1921) of the death of his mother-in-law he said that his daughter, his wife and a Mrs. Proud observed an unexplained cloud over the bed of the dying woman. As Tweedale writes:

Then . . . the upper part of the smoke-cloud turned to a rich purple light . . . and this disc of purple light continued to hover steadily in the air at a height of a few inches about the recumbent form. Then . . . a beautiful halo began to form around the head of Mrs. Burnett [the dying woman]. It was at first pale in colour, but gradually deepened to a rich purple, which stood out in conspicuous contrast to the white pillow. It stood off from the head about three inches and was about four broad, the colour becoming deeper on the outside edge, while the inside of the halo was fainter and more transparent. The outer edge was irregular or serrated as if divided into a number of lights or flames.

As soon as this wonderful thing had well established itself, the deep purple light began to surround each eye of the unconscious person and outlined the nose, and finally surrounded the nose. During all this time the big disc of purple light hovered over the abdomen, and this disc, together with the wonderful halo around the head, and the lights on the face continued to be visible to them all for nearly twenty minutes . . . (p. 551)

A case similar to the preceding one is that of Dorothy Monk's mother. The dying woman was surrounded by relatives at her deathbed when unexplained blue lights were seen near her and about the room. According to the report:

At dusk that afternoon as she lay perfectly quiet, I and three sisters all at once noticed a pale blue mauve haze all over her as she lay. We watched it

and very gradually it deepened in colour until it became a deep purple, so thick that it almost blotted out her features from view, and spread all in the folds of the bed clothes like a purple fog. Once or twice she feebly moved her arms and the colour travelled with them. (Monk, 1922, p. 182)

Other appearances and lights were observed by some persons but not by others, though all were in a favorable position to make the same observations. Clouds of white mist were seen over the dying woman by the reporter of the case, her five sisters, a brother and a brother-in-law. Some hours later it was observed that 'a halo of pale yellow light rays came round her head; there were about seven in number; they varied in length from twelve to twenty inches at different times' (p. 182).

Elizabeth McAdams (1984) has investigated a recent case in a hospice in California where several persons observed luminous effects around a dying 68-year-old man for several hours on the day of his death. Some persons could not see the light, though they were in a position to do so.

Other cases are briefly mentioned by Cross (1939, pp. 90-91) and by Matson (1975, pp. 13-14).

Other Cases

In this section I will mention cases occurring under a variety of conditions.

Perhaps the best investigated case of a 'luminous' person on record is that of Anna Monaro, an Italian woman who showed an unexplained light from the region of her chest in a convalescent home in Pirano, Italy (Protti, 1934; Vitali, Trabacchi & De Sanctis, 1934). Dr. Giocondo Protti (1934), an Italian physician, investigated the case in detail in Pirano. Protti started his investigation by interviewing physicians, nuns, and patients in the hospital who had observed the light. Among other things, the testimony indicated that: (1) the light always appeared around the cardiac region; (2) it was seen with a fan-like form and, more rarely, as a globe; (3) it was usually blue and green; when seen as a globe it was pink, but it also showed diverse iridescent tonalities when disappearing; (4) its duration was about three to four seconds; (5) it appeared with Monaro's crepuscular period; (6) it was never seen during the day, but only during the night; (7) it was often seen when Monaro was sitting on the bed with her chest uncovered by the blankets; (8) it appeared and disappeared without Monaro's awareness; (9) it did not leave any trace of its appearance (heat, odor); (10) it appeared with greater frequency and intensity on dry days as opposed to humid and rainy days; (11) on each manifestation Monaro awakened with a moan (usually an invocation to Jesus); (12) the menstrual cycle had no relation with the light.

Protti found that the lights started when Monaro was fasting during Holy Week. In the three days of the fasting during which she had only some water and soup, the light was more frequent and intense. Protti was able to film the light for about three seconds. Placing an electroscope near Monaro he found that there was no air ionization near her when the light appeared. Other findings were:

(1) no salient physical or mental disorder (with the exception of asthma, hypertension, and 0.10 per cent of albumin in the urine);

- (2) irregular pulse and respiration rate during sleep;
- (3) increase in heart and respiration rate during appearances of the light.¹²

Monaro was studied later in Rome by a commission of physicians. Although there were no manifestations of luminous phenomena, more systematic and detailed psychological and medical examinations did not reveal any anomalies in Monaro (Vitali *et al.*, 1934). In the report she is described as a person having religious visions through her life, and as having vivid dreams and imagination. She is considered an example of a person with a 'fantastic-hallucinatory' predisposition, that is, a person who, though not necessarily suffering from pathology, is prone to altered states, fantasy and mythomania.

Féré (1905) reported firsthand observations of anomalous luminous phenomena he observed with some of his patients suffering nervous disorders. As he wrote:

In 1883, I observed a woman of 28 years of age, who came of a neuro-arthritic family, and was, herself, subject to various hysterical symptoms during the previous ten years: convulsion, anorexy, white oedema with permanent stigma . . . She had also violent, generally menstrual, attacks of headache . . . It was during an unusually painful attack, accompanied by sensation of frontal bruising, and by cold in the cyanotic extremities, that I was struck . . . by the sight of a light possessing a radius of about 20 cm, which encircled her head; the light, which was of an orange colour, diminished in intensity near the periphery. The same phenomena was manifested around her two . . . hands. The skin, which was usually white and *mat*, had taken an orange tint, of a deeper shade than the halos. (pp. 70-71)

The change in color in the skin occurred before the lights appeared. Both disappeared later when the patient vomited. The patient's husband said he had never seen such phenomena before (though it is not clear from the account if he was present when Féré made the above-quoted observations).

Another case reported by Féré (1905) is that of a woman 25 years old suffering from monthly headaches since her puberty, when she was 13 years old. The case occurred in 1884 when the woman was suffering from a strong headache and Féré was present. As Féré wrote:

The young woman . . . stiffened herself back; at the same time, her skin presented a change and became, suddenly, of an orange colour . . . : then a light, of the same orange colour, was manifested around the head and hands . . . The phenomenon only lasted for a few minutes, after which the patient recovered power of speech. (p. 71)

Rocha de Azevedo (1980) briefly reported three cases of anomalous luminous

¹² Protti also claimed to have found that Anna Monaro's blood had three times the 'radiation' of normal blood. However, he did not specify his method of measuring this radiation or in any way relate his observations of such a radiation to earlier work by himself or others. Bateman (1934) severely criticised the suggestion of a radiation from the blood and suggested that there was something fundamentally wrong with Protti's claim in this matter. In later tests mention is made again of the radiation measures from the blood, but no methodological details are presented. This time there were no abnormal readings, but the phenomena was not manifesting when the tests were performed (Vitali *et al.*, 1934, pp. 213, 225).

effects, but I will describe only one of them here.¹³ Rocha de Azevedo was visiting Mr. A. R. one night at his (A.R.'s) home when he was surprised to see 'luminous rays' coming out from A.R.'s hands. The 'rays' were of a blue-green color and about a meter long. They were seen coming out only from his hands and lasted a few seconds. A.R. was passing through a difficult period because he had been suspended from his job in an important business because of a burglary committed there. The lights were seen frequently until A.R.'s situation was cleared up and he was asked to return to his job. Forty-five days elapsed between the first observation of the phenomena and its disappearance.

EVIDENTIAL ASPECTS OF THE CASES DISCUSSED

As mentioned before, the cases presented here are not offered as proof of the existence of luminous phenomena related to the human body. Nonetheless, it may be useful to point out some evidential problems with some of this material.

Fraud

The issue of fraud is a serious problem, especially in the case of mediums. Many techniques have been developed to produce different types of luminous effects fraudulently in the darkness of the seance room (e.g., Carrington, 1920, pp. 252-253, 269-270; Tocquet, 1952, pp. 111-114). Richet (1923) considered that luminous effects had not been established to occur with mediums but wrote that, although fraud may occur in the production of lights, these 'are phenomena that no medium can produce by trickery after he has been carefully searched' (p. 483). Unfortunately, the case of the medium Pasquale Erto, around whom some remarkable luminous phenomena were observed (e.g., Geley, 1924; Sanguinetti, 1922) proves that things are more complex than Richet maintained. Erto was never (to my knowledge) discovered in fraud, but there is circumstantial evidence that points strongly towards trickery on his part. In sittings sponsored by the Institut Métapsychique International in Paris, Erto worked in complete darkness and was not held by controllers but he was anatomically examined, dressed in a leotard covering all his body, and his hands were enclosed in boxing gloves. Under these conditions, and with a magician present, he was not directly detected in fraud, but according to Geley (1924) the following suspicious circumstances emerged. A hole in the genital region of Erto's leotard was found on one occasion, which coincided with the medium's opposition to being examined in that area of his body after the seance. Also, a small block of ferrocerium was found in the syphon of a washbasin where Erto had washed himself the day before, the place being closed and unused by anyone other than sitting participants. It was found that by rubbing ferrocerium against other materials, such as metals, luminous effects similar to some of those produced by Erto could be obtained. The report of later seances conducted by different investigators (Berné, Bloch, Garçon, Heuzé, Lormand, Marcotte, Maingot & Vinchon, 1926) revealed that a small piece of ferrocerium was found in one of the medium's shoes, that a piece of ferrocerium and a steel pen nib were found near the medium's chair when the room was cleaned, and that the use of a magnet

¹³ I am grateful to J. Rocha de Azevedo for additional information he sent me regarding his cases of luminous phenomena.

showed that there were similar objects in the medium's clothes. Finally, Harry Price (1933) also reported finding ferrocium and other suspicious metallic particles on the floor surrounding the medium's chair the day after the seance was held.

In a later report Servadio (1932) defends the medium from the inferences drawn in the previously mentioned reports, and affirms that he obtained luminous phenomena with Erto unexplained by the use of ferrocium. However, the fact remains that the above mentioned circumstantial evidence is not favourable to the genuineness of Erto's luminous phenomena and illustrates how difficult these investigations can be.

Another report that shows the difficulty of this type of investigation is that of the medium Anna Burton (pseudonym of Ada Bessinet) (Hamilton, Smyth & Hyslop, 1911). The investigators had evidence of what they thought was unconscious fraud (pp. 51, 456), and on one occasion they found the medium's saliva to be phosphorescent (pp. 234, 243). But they were still puzzled about the true nature of lights seen close to the medium (and sometimes at a distance) (pp. 70-77) since they could not explain or reproduce them or find evidence for fraud other than the suspicious incident of the luminous saliva. Hyslop wrote in the report that: 'The objection which any claim to the existence of supernormal lights has to meet is that the discovery of 'natural' methods of producing other apparently supernormal phenomena at least suggests undiscovered methods of producing the lights in a normal manner' (p. 76). He presented several qualifying statements regarding acceptance of normal and paranormal explanations, but said that his personal impression was that the lights seemed 'to be very good evidence for supernormal phenomena' (p. 77) because of his inability to explain them. (In a later publication Hyslop (1919) briefly mentioned luminous phenomena with Burton involving alleged ESP-acquired information expressed in words written in 'letters of fire' (pp. 267, 350). He seemed to consider that the manifestations were of a paranormal nature.)

Fraud in the production of luminous effects has been reported with self-confessed fraudulent medium Ladislas Lasslo (Schrenck-Notzing, 1924), and with mediums Guzik (Price, 1933, p. 347) and Margery (Tietze, 1973, p. 138).

Problems with Reporting Style

A problem with many of the cases discussed here is the lack of important details regarding observers and circumstances (e.g., number of persons, position of persons, details about the light's color, shape and duration). It is to be hoped that future reports may improve the situation.

Although collective perceptions have been claimed in some cases, the testimony of each person has never been presented, with a single exception (McAdams, 1984). Usually one person summarizes what others supposedly saw (e.g., Tweedale, 1921). The possibility of finding contradictory testimony or just different perceptions (see next section) is almost eliminated because of the inefficient reporting style.¹⁴

¹⁴ See Green and McCreery (1975, pp. 41-43) for comments on the difficulties of making sure that descriptions of collectively perceived apparitions are different from one witness to another because of distortion of testimony and/or different perceptions, and on the lack of attention paid to the possibility of different perceptions of the apparitional experience by the percipients.

Other Problems

The evidential value of most of the cases discussed here is low not only because of inadequate records but also because of lack of adequate interviews with the persons involved in the cases. Additionally, other problems common to spontaneous psi research such as malobservation, defects of memory, and motivated errors should be considered (Stevenson, 1968).

OBJECTIVE, HALLUCINATORY, AND PSYCHIC PERCEPTIONS

Discussing perceptual reports of the aura, Tart (1972) has pointed out that there may be physical auras (capable of being detected by instruments), psychological or hallucinatory ones, and psychic auras, in which a different type of 'objective reality' is perceived by paranormal means (see also Bigu, 1976). The reports reviewed here may be conceptualized in a similar way, although in practice it is very difficult (sometimes impossible) to classify them because of lack of information.

The case of Anna Monaro indicates a physical perception of light, since the luminous effect was seen and registered on film (Protti, 1934).

The collective¹⁵ deathbed observation cases reported by McAdams (1984) and by Monk (1922), in which some observers saw things others could not,¹⁶ may suggest a psychic perception if we consider, as Bozzano (1923, pp. 234-235) did in relation to deathbed witnesses' reports of apparitions and 'transcendental music', that the process in question is a 'spiritual' or 'psychic perception' that not everyone is sensitive enough to experience.¹⁷ This, however, is not enough to support the point because selective perception is also known to occur with normal perceptual processes. Also, a hallucinatory model postulating different gradations of the experience arising from normal variability of imaginal capacities or suggestibility levels should not be rejected for some cases.

The rest of the cases are difficult to classify since some involved only single witnesses, and others for which collective percipience is claimed lack detailed descriptions of the observations of each one of the persons involved in the case.

In summary, it is not possible to classify the reports with certainty following Tart's (1972) categories, though it is possible that we may be dealing here with luminous effects requiring diverse explanations.

¹⁵ Regarding collective percipience and its implications towards 'objective' or 'subjective' perceptual explanations see: Gurney *et al.* (1886, Vol. 2, pp. 168-270, 277-316), Hart & Hart (1933), and Vesme (1938).

¹⁶ There are many cases recorded in the literature of visual and auditory impressions perceived by only one or some of the persons present but invisible or inaudible to others. For examples see: Bozzano (1923, p. 234, auditory), Collective Apparition (1893, visual), Morton (1892, visual). Gurney *et al.* (1886, Vol. 2, pp. 221-223, auditory; pp. 237-238, visual; pp. 619-622, visual). Other reports emphasize different perceptions (e.g., seeing or hearing, seeing or feeling a presence) in the persons present at the moment of the experience (e.g., Crookes, 1874, p. 92; Gurney *et al.*, 1886, Vol. 2, pp. 203-204, 236-237, 639-641; Sidgwick *et al.*, 1894, pp. 318-319).

¹⁷ It has been suggested that the form a psychic perception may take depends on the mental idiosyncracies, imagery preference, or cognitive coding style of the percipients (e.g., Bozzano, 1907, p. 362; Bullough, 1909; Irwin, 1979a; Gurney *et al.*, 1886, Vol. 2, pp. 171-172), a hypothesis that may be related to the selective percipience phenomenon discussed here.

ANALYSIS OF THE CIRCUMSTANCES AND CHARACTERISTICS RELATED TO THE REPORTED PHENOMENA

This section will discuss different aspects of the cases to see if there are patterns or important characteristics. However, this should be considered only as a tentative and superficial analysis because: (1) I have not been able to survey all available reports, and (2) many details are missing from the reports, especially in the case of mystics and saints, since these were either briefly reported or I have not been able to consult the original reference (many of which were published before the 19th century) to obtain more details. Because of these limitations, I have not attempted any analyses of the characteristics of the lights (e.g., form, color, duration, and other physical aspects).¹⁸

Circumstances of Occurrence

Type of persons involved in the cases. The cases here discussed have been classified according to the persons showing the luminous manifestations. They have been divided into those concerning special or gifted persons (mediums and mystics and saints), those concerning dying persons, and others in which the 'luminous' persons generally have some sort of physical or mental problem. Differences and similarities between these categories will be discussed under the following headings. Unfortunately, there is not enough information in the reports to do similar analyses regarding the observers.

Psychological aspects. Most of the cases involved some sort of altered state of consciousness (ASC) in the person around whom the light was observed. The mediums were in trance, and the mystics and saints were generally in prayer, meditation, or ecstasy. Dying persons may also be considered to be in an ASC. The case of Monaro (Protti, 1934) and the cases reported by Féré (1905) occurred when the subjects were falling asleep or suffering from headaches. On the other hand, cases like those of Sai Baba, Seraphim of Sarov (Motovilov, 1948) and A.R. (Rocha de Azevedo, 1980), do not present clear evidence of an ASC.

Other psychological aspects are the presumed diseased condition of the subjects reported by Féré (1905) and the crises suffered by two subjects reported by Rocha de Azevedo (1980), although more evidence from systematic studies is needed before any correlation can be seriously established.

Physiological aspects. The reports of phenomena with dying persons offer scanty details on the condition of the persons close to death, and there seem to be no clear common patterns in the few cases for which there is information.

Féré (1905) has described three cases of luminous phenomena in which the persons around whom the light was seen were suffering from nervous conditions and severe headaches. In one of the cases the headache was described as menstrual in origin, but in the case of Monaro there was no relationship between the flashes of light and the subject's menstrual period (Protti, 1934).

¹⁸ No information is available on possible physical properties of the light (e.g., smells, heat, electrical components) with the exception of Monaro's case where it was found that the light could be photographed and that it did not produce ionization effects. Smells are of particular interest since in the past there have been reports of ozone or phosphorus-like smells accompanying materializations and luminous phenomena with a variety of physical mediums (e.g., Geley, 1923, pp. 213, 224; Instituto Mexicano de Investigaciones Siquicas, 1960, pp. 89-90, 129; Pawlowski, 1925, p. 487).

In Monaro's case radiation measures taken from her blood were three times higher than average normal measures,¹⁹ and the appearance of the luminous phenomena coincided with increases in heart and respiration rate. This is similar to the observations reported by Osty and Osty (1932) about the apparent infra-red detection of a 'force' 'emanating' from the medium Rudi Schneider that was synchronized in its movements with the medium's respiration rate. The observation with Monaro is also consistent with physiological measures taken of physical mediums, in whom changes in pulse rate and other functions seem to be related to reported paranormal physical phenomena (e.g., Courtier, 1908; Geley, 1927; Price, 1926). There are also some anecdotal observations of physiological changes in physical mediums during luminous phenomena. Maxwell (1905, p. 158) hints at an unspecified connection in Palladino between breathing and luminous phenomena. On one occasion 'convulsive shivers' were observed in Stella C. before flashes of light appeared (Price, 1973, p. 129). With the Mexican medium Luis Martínez a light was reported to disappear when the medium coughed (Instituto Mexicano de Investigaciones Síquicas, 1960, p. 118). However, these observations with luminous phenomena are mere anecdotes of unsystematic observations.

RELATIONSHIP WITH OTHER PHENOMENA AND WITH DIFFERENT TYPES OF LUMINOUS EFFECTS

Although this study has been limited to luminous phenomena, and particularly to those close to the human body, it is of theoretical and general interest to note how these phenomena may relate to other alleged paranormal occurrences and to luminous effects away from the body.

Relationship with Other Phenomena

Materializations. Luminous effects have been associated with ectoplasmic materializations. Sudre (1962) considered some of them as 'focuses of condensation' (p. 239) of ectoplasm of the nebulous type, whereas Geley (1921) believed they 'represent the first stages of materialization . . .' (p. 174) (my translation). It has been suggested that the same energy responsible for ectoplasmic formations also produces light, since this energy is thought to be able to assume different forms and perform different tasks (e.g., Geley, 1927; González Quevedo, 1971; Montandon, 1927). Zimmer (1923) has speculated that when ectoplasm is luminous its chemical properties are different from those of non-luminous ectoplasm. However, all this should be viewed with caution considering inherent difficulties in evaluating the validity of the claims regarding materialization.

Other phenomena. It should also be pointed out that the luminous phenomena studied here have coincided with other manifestations such as elongation (Dunraven, 1924, p. 161), levitation (Dunraven, 1924, p. 161; Leroy, 1928, pp. 42, 53, 60, 64, 68), stigmatization (Festa, 1949, p. 225; Imbert-Gourbeyre, 1894, pp. 178, 182), and automatic or inspirational writing (Silverio de Santa Teresa, 1915, p. xiii, footnote).

¹⁹ These observations seem suspect. See footnote 12 for additional comments.

Relationship with Luminous Phenomena Occurring Far Away from the Body

The distinction between luminous phenomena seen close to the body and those seen separated or far away from the body may be an artificial one. Mediums who have exhibited luminous phenomena close to their bodies have also been associated with lights occurring at a distance (e.g., Geley, 1927; Morselli, 1908). Similar observations have been made with saints (e.g., Görres, 1854, pp. 66, 71-72; Ribet, 1895, pp. 598-599) and with dying persons (e.g., Donovan, 1840; A Spirit Mother, 1907).

Religious vs. Non-Religious Contexts

It has been argued that luminous phenomena in saints may show more intensity than the lights reported in non-religious contexts (Vega, 1976). It is also my impression that this is the case because I have only found reports in which the whole room (chapel or church) was said to be strongly illuminated in cases with mystics and saints (e.g., Antift, 1956, p. 149; Silverio de Santa Teresa, 1934, p. 135).

THEORETICAL CONCEPTS TO EXPLAIN LUMINOUS PHENOMENA

Several explanations have been presented in the past to explain luminous effects observed around the human body, though most of them have been offered in specific contexts (e.g., mediums, dying persons). I shall summarize these concepts briefly. Some of them may apply to certain of the phenomena, but I wish to emphasize that we have no strong support for any of them. It seems likely that we need to explain a variety of different phenomena each type of which may require a different explanation.

Perceptual Distortions, Illusions, Hallucinations

Several normal explanations may be offered. Examples are hallucinations generated by expectations, beliefs or the demand characteristics of specific contexts or situations (e.g., seances, religious activities). Also, temporal lobe disturbances and entoptic phenomena in the process of vision may be considered for some cases. Other aspects such as illusions, afterimages, retinal fatigue, and contrast effects have been proposed in the past to account for auras (e.g., Fraser-Harris, 1932; Neher, 1980; Owen and Morgan, 1974) and may be relevant in this context. Unfortunately, since most of the reports offer little information about the person observing the luminous effect it is difficult to test the validity of these explanations. On the other hand, such explanations present difficulties in dealing with cases of collective percipience and with repeated observations under different circumstances.

Biophysical Concepts

Physical processes. There is evidence for the existence of various normally invisible physical fields around the human body such as magnetic, ultraviolet, and thermal emanations, that perhaps may be visible to some persons, or that may have special properties around the body of certain individuals or under particular circumstances (Bigu, 1976).

Electrical explanations have also been suggested (e.g., Nody, 1929). In fact, there are some cases in the old literature that strongly suggest electrical potential

changes as an explanation for sparks seen around the human body (e.g., Féré, 1888; Mussey, 1838). Although some parapsychologists have considered apparent electrical lights together with others assumed to be paranormal (González-Quevedo, 1971; Rochas, 1896), others have made the point that mediumistic lights are independent of electrical effects (Bret, 1927; Ochorowicz, 1909). (For a discussion of electrical explanations of paranormal physical phenomena, including luminous effects, see: Koopman, 1937, and Mondeil, 1937–1938).

Physiological processes. Some authors have suggested a vague relationship between nervous tension and the production of light by electrical or nonspecified means (e.g., Féré, 1905; Melcior y Farré, 1900). Nody (1929) speculated on an interaction between intense nervous excitation, electrical tension, and phosphorescent substances from the body in the production of luminous effects.

Others have speculated about nonspecific mechanisms such as the emission of phosphorescent substances from the epidermis (Jordán Peña, 1979). This brings us to proposed analogies between animal bioluminescence and the phenomena we are discussing here (for some discussions along this line, see Geley, 1927, p. 343; Myers, 1903, Vol. 2, pp. 538–540; and Zimmer, 1923, pp. 194–196). Much has been done in the field of animal and bacterial bioluminescence, basically a process of chemoluminescence (e.g., DeLuca, 1978; Herring, 1978; Nicol, 1962). However, there does not seem to be evidence to support the argument of human luminescence through chemoluminescence process. Harvey (1957) explains some cases of human luminescence by bacterial infections. As he wrote: 'The instances of luminous human beings are fascinating to read of, but it is quite certain that man has never acquired the ability to produce light like that of the firefly' (p. 3).²⁰

In relation to luminous phenomena on the body of dying persons it has been proposed in some 19th century medical publications that the light represents the beginning of the decomposition of the body and may be related to the phenomenon of so-called spontaneous human combustion (e.g., Marsh, 1842; Watson, 1845).²¹

Although open to serious criticism (see Bateman, 1934, and my comments on footnote 12), mention should be made of Protti's (1934) suggestion that Monaro's phenomena could be explained by postulating an interaction of the abnormal radiation levels of her blood with sulphuric and ultraviolet components of the blood.

Collier (1843) reported a case of a person whose skin became luminous when

²⁰ Harvey's opinion is interesting because he was a respected pioneer of bioluminescence research. However, it is of historical interest to point out that Dubois (1922), another important early pioneer of bioluminescence research, was willing to consider the possible existence of 'metapsychic bioluminescence' as an explanation of cases unexplained by the action of foreign substances or bacterial infections.

²¹ The topic of spontaneous human combustion may not be well respected or discussed in modern medical literature, but there are several discussions of it in the 19th century (e.g., Apjohn, 1845; Hartwell, 1892; for a brief review see: Nickell & Fisher, 1984; and Oliver, 1936). For a highly critical and negative perspective of this phenomenon in the same period see: Spontaneous Combustion (1861).

he consumed a diet rich in fats. Apparently the luminosity was caused by a bodily secretion, since the man's shirt was also luminous. Another case of an unexplained body secretion was observed by Joseph Maxwell in connection with a medium who glowed in the dark. Maxwell cleaned the medium's skin with chemicals and made him exercise under observation to increase the perspiration rate. The medium was again observed to glow in the dark. At the time, the medium was eating six eggs a day and taking a tonic with phosphate of lime (Private Meeting, 1905). Abnormal luminous physiological secretion may therefore explain some cases.

Paranormal Concepts

These concepts may be divided into (1) paranormal manipulation of bodily processes or substances, (2) the action of paranormal energies unrecognized by science, and (3) religious explanations.

Paranormal manipulation of bodily processes and substances. Myers (1903, Vol. 2, p. 541) considered the possibility of a paranormal action causing the exteriorization of the phosphorus of a medium's body as an explanation of luminous phenomena. Hyslop proposed a similar idea when he wrote: 'We know . . . that the human organism secretes phosphates very freely and it may be possible that certain persons extraordinarily endowed may be able, either through their own powers or the intervention of foreign agencies, to analyze these phosphates and expose them to oxygenation, in which case lights would be producible' (Hamilton, Smyth & Hyslop, 1911, pp. 77-78).

Paranormal energies. The concept of paranormal body energies (so-called 'human radiations' or 'fluids') has a long history in occultism, Spiritualism and psychical research as a phenomenon by itself and as an explanation for diverse phenomena (e.g., Amadou, 1953; Dumas, 1953; Montandon, 1927). This energy is considered to be the vital energy of the body, which can produce telekinesis, materializations and luminous phenomena when externalized. These ideas, or variants of them, have been used mainly by European parapsychologists to explain luminous phenomena (e.g., Geley, 1927; González-Quevedo, 1971; Montandon, 1927; Rochas, 1896; Sudre, 1962). Explanations closely related to this are those that postulate the concept of a 'double' or a subtle body (e.g., Bozzano, 1937; Crookall, 1967; White, 1937).

A variant of these concepts postulates that what is perceived as a light is not a physical energy but some sort of 'non-physical' energy or another level or dimension of reality that can only be perceived through paranormal means. Myers (1903) wrote of 'metetherial luminescence' (Vol. 2, p. 542). Tart's (1972) 'psychical aura' is basically the same idea. Also relevant in this context are discussions in parapsychological literature of psychometric and 'etheric matter' explanations of apparitions and hauntings (e.g., Bozzano, 1920; Hart & Collaborators; 1956; H. H. Price, 1939), as well as various conceptualizations of 'nonphysical space' or dimensions (e.g., Hart, 1953; Smythies, 1951), all of which are difficult to test scientifically.

Religious explanations. In religious and mystical conceptualizations it has been contended that the luminosity seen around mystics and saints reflects the gifts of the Holy Spirit and the spiritual quality or grace of the person in question (e.g., Arintero, 1968; Görres, 1854; Ribet, 1895). These are basically metaphysical and

non-testable explanations. Also, they seem unlikely explanations, since the same or similar phenomena are reported in persons who are apparently not saintly.

SUGGESTIONS FOR FURTHER RESEARCH

Further research on these phenomena can be conducted from different perspectives, as outlined in the section of theoretical concepts. We should also be aware that these studies may emphasize the person seeing the luminous effects, or the person around whom the luminous effect is reported. I will discuss below a few ideas for further research under the following headings: (1) psychological aspects, (2) medical and physiological aspects, (3) physical aspects, and (4) other aspects.

Psychological Aspects

Following the emphasis of research in cognitive aspects of ESP reported in the literature during the last decade or so (e.g., George, 1981; Irwin, 1979b), the role of mental imagery and other cognitive variables in observers reporting luminous effects may be explored. Aspects such as absorption (Tellegen and Atkinson, 1974), fantasy-proneness (Wilson and Barber, 1983), vividness of visual imagery (Marks, 1973) or diverse types of imagery such as eidetic images and after-images (Horowitz, 1978) may be studied in relation to perception of luminous phenomena.²²

Also, more attention could be given to the state of consciousness and to possible psychopathological variables in both the person exhibiting the phenomenon and in the observer.

Medical and Physiological Aspects

Physiological studies of the person around whom the effect is seen could be done as in the case of Monaro (Protti, 1934; Vitali *et al.*, 1934), to see if the phenomenon is related to abnormal conditions or diseases, or if the phenomenon induces or is associated with physiological changes such as alterations of pulse rate and endocrinological functions, among other possible variables. Similar studies could be done from the point of view of the observer, taking into consideration factors such as problems in vision and possible temporal lobe symptomatology. (Whitton (1974) reported a study of EEG correlates of aura vision.)

Physical Aspects

Attempts could be made to study the various physical aspects of luminous phenomena. We could try to photograph and film the lights, and check for possible electrical or chemical properties, as well as intensity level, duration, and other variables. Spectrographic analyses, as done in the field of animal and bacterial bioluminescence (e.g., Herring, 1978; Nicol, 1962), could also be performed. Such analyses have been proposed and attempted (with no success) in connection with physical mediums (e.g., Grunewald, 1920, pp. 58-63; Lipschitz, 1931; Maxwell, 1905, p. 148). For this purpose, diverse photometric devices such as photomultiplier tubes and other apparatus used in bioluminescence studies (e.g., Barenboim, Domanskii, and Turoverov, 1969, pp. 143-197;

²² Regarding auras, see Owen's (1972) attempt to correlate reports of such phenomena with visual vividness level.

Picciolo, Deming, Nibley, and Chappelle, 1978) and aura detection research (e.g., Dobrin *et al.*, 1979; Karolyi *et al.*, 1983) may be used.

Other Aspects

More information is needed on the phenomenology of the lights. Information about frequency of colors, duration, and other aspects such as shape should be more systematically collected in future studies.

The study of cases with collective percipience should receive special attention, especially in regard to similarities and differences in the witnesses' perceptions. In this respect we should try to improve the quality of the reports of the cases, including the independent testimony of all observers with full details.

CONCLUDING REMARKS

The purpose of this review has been to present in a single paper diverse reports of anomalous luminous effects observed around the human body in order to highlight some of the available material on the topic, present possible explanations, and make suggestions for further research. No attempt has been made to defend any particular explanation, although on some occasions I have pointed out that some findings and observations are consistent with particular explanations.

Regarding the validity of the explanations, I want to emphasize the importance of further research before making any assessment of the explanatory value of the concepts summarized here. It should be remembered, however, that we may be dealing with a variety of effects having a diversity of explanations.

The case of Anna Monaro offers a model of a single case study in which psychological, psychiatric, medical, and physical aspects of the phenomena were considered in the study of unexplained luminous phenomena (Protti, 1934; Vitali *et al.*, 1934). It is to be hoped that this approach may be employed again if a similar case comes to the attention of competent investigators.

In previous sections I pointed out some methodological problems with these cases. I want to emphasize again that a review such as this one must be accepted with caution since I cannot claim either to have a representative sample of relevant cases in each category, or to have overcome the problem of incomplete or biased reporting in the surveyed literature. Also, and especially regarding mystics and saints, I have not been able to obtain some primary sources published before the 19th century.

Nonetheless, it is my hope that the information presented here may stimulate further investigative interest in these currently neglected phenomena.

REFERENCES

- Amadou, R. Esquisse d'une histoire philosophique du fluide. *Revue métapsychique*, 1953, No. 21, 5-33.
- Antifi, V. I. La vida, y historia del apostolico predicator fant Vincente Ferrer Valenciano, de la orden de Fanco Domingo. In J. M. de Garganta and V. Forcada, *Biografía y Escritos de San Vicente Ferrer*. Madrid: Editorial Católica, 1956. Pp. 87-334. (First published in 1575).
- Apjohn, J. Spontaneous human combustion. In J. Forbes, A. Tweedie, J. Conolly & R. Dunglison (Eds.), *The Cyclopaedia of Practical Medicine* (Vol. 1). Philadelphia: Lea and Blanchard, 1845. Pp. 470-476.
- Arintero, J. G. *La Evolución Mística en el Desenvolvimiento de la Iglesia*. Madrid: Editorial Católica, 1968. (First published in 1908).

- Austin, R. W. J. (Trans.) *Sufis of Andalusia: The Ruhul-quds and al-Durrant al-fakhirah of Ibn'Arabi*. Berkeley: University of California Press, 1971.
- Bagnall, O. *The Origin and Properties of the Human Aura*. (New revised edition). New Hyde Park, NY: University Books, 1970. (First edition published in 1937).
- Baraduc, H. *L'âme humaine: Ses mouvements, ses lumières et l'icographie de l'invisible fluidique*. Paris: Paul Ollendorf, 1897.
- Barenboim, G. M., Domanskii, A. N. & Turoverov, K. K. *Luminescence of Biopolymers and Cells*. New York: Plenum Press, 1969.
- Bateman, J. B. Mitogenetic radiation and bioluminescence. *Nature*, 1934, **133**, 860.
- Berné, A., Bloch, A., Garçon, M., Heuzé, P., Lormand, C., Marcotte, [], Maingot, G. & Vinchon, J. Rapport au sujet des phénomènes produits par le médium Pasquale Erto. In P. Heuzé, *Où en est la métapsychique*. Paris: Gauthier-Villars, 1926. Pp. 237-265.
- Besterman, T. Report of a four months tour of psychical investigation. *ProcSPR*, 1929, **38**, 409-480.
- Bigu, J. On the biophysical basis of the human 'aura'. *Journal of Research in Psi Phenomena*, 1976, **1**(2), 8-43.
- Blasucci, A. Phénomènes lumineux. In *Dictionnaire de spiritualité, ascétique et mystique, doctrine et histoire*. (9, fasc. 62-63) Paris: Beauchesne, 1976. Pp. 1184-1188.
- Bond, F. B. The remarkable phenomena of Frau Silbert. *Psychic Science*, 1923, **2**, 8-29.
- Bottazzi, P. The unexplored regions of human biology: Observations and experiments with Eusapia Palladino. *Annals of Psychological Science*, 1907, **6**, 377-422.
- Bozzano, E. Symbolism and metapsychical phenomena. *Annals of Psychological Science*, 1907, **6**, 335-366.
- Bozzano, E. *Les phénomènes de hantise*. Paris: Félix Alcan, 1920. (First published in Italian in 1919).
- Bozzano, E. *Phénomènes psychiques au moment de la mort*. Paris: Editions de la B.P.S., 1923.
- Bozzano, E. *Les phénomènes de bilocation*. Paris: Jean Meyer, 1937. (First published in Italian in 1934).
- Bret, P. T. *Précis de métapsychique: Subconscient et métapsychisme*. Paris: J. B. Baillière, 1927.
- Bullough, E. Mental types: A suggestion for experiments. *JSPR*, 1909, **14**, 84-89.
- Carrington, H. *The Physical Phenomena of Spiritualism*. (Third revised edition). New York: Dodd, Mead, 1920. (First edition published in 1907).
- Collective apparition. *JSPR*, 1893, **6**, 146-150.
- Collier, G. F. Case of psoriasis palmaria in which the entire living body becomes luminous from a phosphorescent secretion. *Lancet*, 1843, **2**, 374.
- Corliss, W. R. (Comp.) *Lighting, Auroras, Nocturnal Lights, and Related Luminous Phenomena*. Glen Arm, MD: Sourcebook Project, 1982.
- Courtier, J. *Documents sur Eusapia Palladino*. Paris: Institut Général Psychologique, n.d. [1908].
- Craibtree, A. *Multiple Man: Explorations in Possession and Multiple Personality*. New York: Praeger, 1985.
- Crookall, R. *Events on the Threshold of the After-Life*. Moradabad, India: Darshana International, 1967.
- Crookes, W. *Researches in the Phenomena of Spiritualism*. London: J. Burns, 1874.
- Cross, H. H. *A Calvacade of the Supernatural*. New York: E. P. Dutton, 1939.
- Curnow, L. U. *The Physical Phenomena of Spiritualism: A Historical Survey*. Manchester: Two Worlds, 1925.
- DeLuca, M. A. (Ed.). *Methods in Enzymology: Vol. 57: Bioluminescence and Chemoluminescence*. New York: Academic Press, 1978.
- al-Din Attar, F. *Muslim Saints and Mystics: Episodes from the Tadhkirat al-Auliya' ('Memorial of the Saints')*. Chicago: University of Chicago Press, 1966.
- Dingwall, E. J. Notes on periodicals. *JSPR*, 1924, **21**, 286-288.
- Dobrin, R., Kirsch, C., Kirsch, S., Pierrakos, J., Schwartz, E., Wolff, T. & Zeira, Y. Experimental measurements of the human energy field. In S. Krippner (Ed.), *Psychoenergetic Systems: The Interaction of Consciousness, Energy and Matter*. New York: Gordon and Breach, 1979. Pp. 227-230.
- Donovan, D. Case of emanation of light from the human body. (?) *Dublin Medical Press* (Supplement), 1840, **3**, 52-54.
- Dubois, R. La lumière vivante. *Revue métapsychique*, 1922, No. 3, 168-186.
- Dumas, A. La notion de fluide selon le Spiritisme. *Revue métapsychique*, 1953, No 21, 42-48.
- Dunraven, Earl of. Experiences in Spiritualism with D. D. Home. *ProcSPR*, 1924, **35**, 1-285. (First published in 1869).
- Essén, L. E. & Lindahl, B. R. Registering av hudens bioluminescens. *Nordisk Medicin*, 1953, **50**, 1739-1740.
- Feilding, E., Baggally, W. W. & Carrington, H. Report on a series of sittings with Eusapia Palladino. *ProcSPR*, 1909, **23**, 309-569.
- Féré, C. Note sur des modifications de la tension électrique, dans le corps humain. *Comptes rendus hebdomadaires de séances et mémoires de la Société de Biologie*, 1888, **5** (s. 9), 28-33.

- Féré, C. Neuropathic halos. *Annals of Psychological Science*, 1905, **2**, 70-73.
- Festa, G. *Misteri di Scienza e Lucci du Fede: Le Stigmate del Padre Pio da Pietrelcina* (Second edition). Roma: V. Ferri, 1949. (First edition published in 1938).
- Flammarion, C. *Mysterious Psychic Forces*. Boston: Small, Maynard, 1907.
- Fontenay, G. de. Le rôle de la plaque sensible dans l'étude des phénomènes psychiques. *Annales des sciences psychiques*, 1911, **21**, 13-18, 98-109, 349-355; 1912, **22**, 15-24.
- Fraser-Harris, D. F. A psycho-physiological explanation of the so-called human 'aura'. *British Journal of Medical Psychology*, 1932, **12**, 174-184.
- Gaddis, V. H. *Mysterious Fires and Lights*. New York: David McKay, 1967.
- Garrett, E. J. *Many Voices*. New York: G. P. Putnam's Sons, 1968.
- Geley, G. Expériences de matérialisation avec M. Franck Kluski. *Revue métapsychique*, 1921, No. 4, 169-181.
- Geley, G. La lumière vivante métapsychique. *Revue métapsychique*, 1922, No. 3, 187-203.
- Geley, G. Les séances du médium Jean Guzik à l'Institut Métapsychique International. *Revue métapsychique*, 1923, No. 4, 207-224.
- Geley, G. Le cas du médium Erto. *Revue métapsychique*, 1924, No 3, 205-220.
- Geley, G. *Clairvoyance and Materialisation*. London: T. Fisher Unwin, 1927. (First published in French in 1924).
- George, L. A survey of research into the relationships between imagery and psi. *JP*, 1981, **45**, 121-146.
- Giacometti, T., Vampirismo fra viventi. *Luce e Ombra*, 1948, **2**, 43-54.
- González-Quevedo, O. *Las Fuerzas Físicas de la Mente* (2 vols.). Santander, Spain: Sal Terrae, 1971. (First published in Portuguese in 1969).
- Görres, [J. J.]. *La mystique divine, naturelle, et diabolique* (Vol. 2). Paris: M^{me} V^{ve} Poussielgue-Rusand, 1834. (First published in German in 5 volumes in 1836-42).
- Green, C. & McCreery, C. *Apparitions*. London: Hamish Hamilton, 1975.
- Grünwald, F. *Physikalisch-Mediumistische Untersuchungen*. Pfullingen: Johannes Baum, 1920.
- Gurney, E., Myers, F. W. H. & Podmore, F. *Phantasms of the Living* (2 vols). London: Trübner, 1886.
- Hamilton, T. G. A study of the Winnipeg group-mediumship in its relation to the Dawn teleplasms. *JASPR*, 1934, **28**, 117-130.
- Hamilton, W. H., Smyth, J. S. & Hyslop, J. H. A case of hysteria. *ProcASPR*, 1911, **5**, 1-672.
- Hart, H. The psychic fifth dimension. *JASPR*, 1953, **47**, 3-32, 47-79.
- Hart, H. & Collaborators. Six theories about apparitions. *ProcSPR*, 1956, **50**, 153-239.
- Hart, H. & Hart, E. B. Visions and apparitions collectively and reciprocally perceived. *ProcSPR*, 1933, **41**, 205-249.
- Hartwell, B. H. So-called spontaneous combustion. *Boston Medical and Surgical Journal*, 1892, **126**, 135-137.
- Harvey, E. N. *A History of Luminescence from the Earliest Times Until 1900*. Philadelphia: American Philosophical Society, 1957.
- Herring, P. J. (Ed.). *Bioluminescence in Action*. London: Academic Press, 1978.
- Holms, A. C. *The Facts of Psychic Science and Philosophy*. London: Kegan Paul, Trench, Trubner, 1925.
- Horowitz, M. J. *Image Formation and Cognition*. New York: Appleton-Century-Crofts, 1978.
- Huart, C. (Comp.) *Les saints des derrières tourneurs* (Vol. 1). Paris: Ernest Leroux, 1918.
- Huggins, W. Luminous breath. *Lancet*, 1845, **2**, 274.
- Hyslop, J. H. *Contact with the Other World*. New York: Century, 1919.
- Imbert-Gourbeyre, A. *La stigmatisation* (Vol. 1). Clermont-Ferrand: L. Bellet, 1894.
- Incisa della Rocchetta, G., Vian, N. & the collaboration of Gasbarri, C. (Eds.), *Il Primo Processo per San Filippo Neri*. (Vol. 1) Città del Vaticano: Biblioteca Apostolica Vaticana, 1957.
- Instituto Mexicano de Investigaciones Síquicas. *Una Ventana al Mundo Invisible*. Mexico: Antorcha, 1960.
- Irwin, H. J. Coding preferences and the form of spontaneous extrasensory experiences. *JP*, 1979, **43**, 205-220. (a).
- Irwin, H. J. *Psi and the Mind: An Information Processing Approach*. Metuchen, NJ: Scarecrow Press, 1979. (b).
- Jordán Pená, J. L. Lucas paranormales. *Psi Comunicación*, 1979, **5**, 95-96. (Abstract).
- Karagulla, S. *Breakthrough to Creativity*. Los Angeles: DeVors, 1967.
- Karolyi, G., Nandagopal, D. & Wigg, H. H. Some attempts to detect the human aura. *RIP* 1982. 1983. Pp. 107-110.

- Kilner, W. J. *The Human Atmosphere (The Aura)*. (Second revised edition). London: Kegan Paul, Trench, Trubner, 1920. (First edition published in 1911).
- Koopman, L. J. Du caractère de l'énergie mise en jeu dans les phénomènes de télékinésie. *Revue métapsychique*, 1937, No. 1, 26-34.
- Lambert, R. The medium Frau Silbert. *JSPR*, 1931, **27**, 112-118.
- Layne, N. M. A 'spirit light' phenomenon. *JASPR*, 1940, **34**, 51-54.
- Leroy, O. *Levitation*. London: Burns Oates, 1928.
- Leroy, O. Le visage resplendissant de Sainte Thérèse. *Revue d'ascétique et de mystique*, 1959, **35**, 194-199.
- Lipschitz, R. Die Notwendigkeit Spektraanalytischer Untersuchung leuchtender Teleplasmanebel. *Zeitschrift für Parapsychologie*, 1931, **7**, 342-346.
- Lombroso, C. *After Death—What?* Boston: Small, Maynard, 1909.
- Luys, J. De la visibilité, par les sujets en état hypnotique, des effluves dégagés par les êtres vivants. *Comptes rendus hebdomadaires des séances et mémoires de la Société de Biologie*, 1892, **4**(s. 9), 657-659.
- McAdams, E. Reported near-death observations in a hospice in California. In M. C. Rose (Ed.) *The Synergy of Religion and Psychical Research*. Bloomfield, CT.: Academy of Religion and Psychical Research, 1984, pp. 57-64.
- Macdonald, R. A. & Margolese, M. S. Luminescent phenomena of the external female genitalia. *Fertility and Sterility*, 1950, **1**, 26-32.
- Marks, D. F. Visual imagery differences in the recall of pictures. *British Journal of Psychology*, 1973, **64**, 17-24.
- Marsh, H. On the evolution of light from the living human subject. *Provincial Medical Journal and Retrospect of the Medical Sciences*, 1842, **2**, 163-172.
- Matson, A. *The Waiting World*. New York: Harper & Row, 1975.
- Maxwell, J. *Metapsychical Phenomena*. New York: G. P. Putnam's Sons, 1905. (First published in French in 1903).
- Melcior y Farré, V. *La Enfermedad de los Místicos (Patología Psíquica)*. Barcelona: Establecimiento Tipográfico de Juan Torrents y Coral, 1900.
- Mondeil, Capitaine. Le légende de l'homme électrique. *Revue métapsychique*, 1937, No. 6, 401-438; 1938, No. 1, 21-58.
- Monk, D. The process of dying witnessed by eight persons: Visible evidences of the spirit body. *Light*, 1922, **42**, 182.
- Montandon, R. *Les radiations humaines*. Paris: Félix Alcan, 1927.
- Morselli, E. *Psicologia e 'Spiritismo'*. (2 vols) Torino: Fratelli Bocca, 1908.
- Morton, R. C. Record of a haunted house. *ProcSPR*, 1892, **8**, 311-332.
- Motovilov, N. A conversation of St. Seraphim of Sarov with Nicholas Motovilov concerning the aim of the Christian life. In G. P. Fedotov (Ed.), *A Treasury of Russian Spirituality*. New York: Sheed & Ward, 1948, pp. 266-279.
- Muldoon, S. & Carrington, H. *The Phenomena of Astral Projection*. London: Rider, 1951.
- Mussey, R. D. Cases and observations: Case 1. Extraordinary case of animal electricity. *American Journal of the Medical Sciences*, 1838, **21**, 377-378.
- Myers, F. W. H. The experiences of W. Stainton Moses—I. *ProcSPR*, 1893, **9**, 245-353.
- Myers, F. W. H. *Human Personality and Its Survival of Bodily Death*. (2 vols) New York: Longmans, Green, 1903.
- Neher, A. *The Psychology of Transcendence*. Englewood Cliffs, Prentice-Hall, 1980.
- Nickell, J. & Fisher, J. F. Spontaneous human combustion: Part 1: Thirty cases of the alleged phenomenon. *Fire and Arson Investigator*, 1984, **34**, 4-11.
- Nicol, J. A. C. Animal luminescence. In O. Lowenstein (Ed.), *Advances in Comparative Physiology and Biochemistry*. (Vol. 1) New York: Academic Press, 1962. Pp. 217-273.
- Nody, J. N. Auréoles et odeurs de sainteté. *Mercure de France*, 1929, **211**, 367-389.
- Ochorowicz, J. Les phénomènes lumineux et la photographie de l'invisible. *Annales des sciences psychiques*, 1909, **19**, 192-201, 235-241, 275-282, 298-306, 334-339.
- Ochorowicz, J. Les rayons rigides et les rayons X^a (études expérimentales). *Annales des sciences psychiques*, 1910, **20**, 97-105, 129-136, 172-178, 204-209, 225-231, 257-263, 295-302, 336-344, 357-370.
- Oliver, J. R. Spontaneous combustion—A literary curiosity. *Bulletin of the Institute of the History of Medicine*, 1936, **4**, 559-572.
- Osty, E. & Osty, M. Les pouvoirs inconnus de l'esprit sur la matière. *Revue métapsychique*, 1932, No. 2, 81-122.

- Owen, A. R. G. Generation of an 'aura': A new parapsychological phenomenon. *New Horizons*, 1972, **1**(1), 9-23.
- Owen, A. R. G. & Morgan, G. A. V. The 'rim' aura: An optical illusion: A genuine but non-psychic perception. *New Horizons*, 1974 **1**(3), 19-31.
- Pawlowski, F. W. The mediumship of Franek Kluski of Warsaw. *JASPR*, 1925, **19**, 481-504.
- Picciolo, G. L., Deming, J. W., Nibley, D. A. & Chappelle, E. W. Characteristics of commercial instruments and reagents for luminescent assays. In M. A. DeLuca (Ed.), *Methods in Enzymology*, Vol. 57: *Bioluminescence and Chemoluminescence*. New York: Academic Press, 1978. Pp. 550-559.
- Price, H. The phenomena of Rudi Schneider. *JASPR*, 1926, **20**, 641-665.
- Price, H. *Leaves from a Psychist's Case-Book*. London: Victor Gollancz, 1933.
- Price, H. *Fifty Years of Psychological Research*. London: Longmans, Green, 1939.
- Price, H. *Stella C*. London: Souvenir Press, 1973.
- Price, H. H. Haunting and the 'psychic ether' hypothesis; with some preliminary reflections on the present condition and possible future of psychical research. *ProcSPR*, 1939, **45**, 307-343.
- Private meeting for members and associates. *JSPR*, 1905, **12**, 162-173.
- Protti, G. Accertamenti e considerazioni eseguite a Pirano sulla cosiddetta 'donna luminosa'. *Riforma Medica*, 1934, **50**, 841-851.
- Reichenbach, C. von. *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, 1851). (First published in German in 1845).
- Ribet, J. *La mystique divine distinguée des contrefaçons diaboliques et des analogies humaines*. (Vol. 2) Paris: Librairie CH Poussielgue, 1895. (First published in 4 volumes in 1879-1883)
- Richet, C. *Thirty Years of Psychological Research*. New York: Macmillan, 1923. (First published in French in 1922).
- Rocha de Azevedo, J. *El Enigma de la Mente*. Buenos Aires: Kier, 1980.
- Rochas, A. de. Objectivité des effluves perçus sous forme de lumière dans l'état hypnotique. *Annales des sciences psychiques*, 1894, **4**, 129-162.
- Rochas, A. de. *L'extériorisation de la motricité*. Paris: Chacornac, 1896.
- Rochas, A. de. Les radiations lumineuses du corps humain. *Annales des sciences psychiques*, 1911, **21**, 264-268.
- Rohden, H. *Por um Ideal*. (Vol. 1). Rio de Janeiro: Freitas Bastos, 1962.
- Salik, S. A. *The Saint of Jilan*. Lahore, Pakistan: Ashraff Press, 1961. (First published in 1953).
- Sanguineti, L. R. Phénomènes lumineux inédits obtenus avec le médium Erto. *Revue métapsychique*, 1922, No. 6, 354-359.
- Schrenck-Notzing, [A. F. von]. L'imposture du pseudo-médium Ladislas Lasslo. *Revue métapsychique*, 1924, No. 2, 105-134.
- Servadio, E. Otto sedute col medium Erto. *La Ricerca Psicica*, 1932, **32**, 344-355, 381-393, 434-448, 481-495, 535-546.
- Sidgwick, H., Johnson, A., Myers, F. W. H., Podmore, F. & Sidgwick, E. M. Report on the Census of Hallucinations. *ProcSPR*, 1894, **10**, 25-422.
- Silverio de Santa Teresa, P. (Ed.). *Obras de Sta. Teresa de Jesús*. (Vol. 1) Burgos, Spain: 'El Monte Carmelo', 1915.
- Silverio de Santa Teresa, P. (Ed.). *Procesos de Beatificación y Canonización de Sta. Teresa de Jesús*. (Vol. 1) Burgos, Spain: El Monte Carmelo, 1934.
- Smythies, J. R. The extension of mind: A new theoretical basis for psi phenomena. *JSPR*, 1951, **36**, 477-502.
- A spirit mother visits her dying child. *Light*, 1907, **27**, 494-495.
- Spontaneous combustion. *Blackwood's Edinburgh Magazine*, 1861, **89**, 385-402.
- Stevenson, I. The substantiality of spontaneous cases. *Proceedings of the Parapsychological Association*, 1968, **5**, 91-128.
- Sudre, R. *Parapsychology*. New York: Grove Press, 1962. (First published in French in 1956).
- Tart, C. T. Concerning the scientific study of the human aura. *JSPR*, 1972, **46**, 1-21.
- Tellegen, A. & Atkinson, G. Openness to absorbing and self-altering experiences ('absorption'), a trait related to hypnotic suggestibility. *Journal of Abnormal Psychology*, 1974, **83**, 268-277.
- Thurston, H. Some physical phenomena of mysticism: The odour of sanctity. *The Month*, 1920, **135**, 40-49.
- Thurston, H. The luminous phenomena of mysticism. *The Month*, 1934, **163**, 525-533.
- Thurston, H. Bodily elongation: A curious mystical phenomenon. *The Month*, 1936, **168**, 535-548.
- Tietze, T. R. *Margery*. New York: Harper & Row, 1973.

- Tocquet, R. *Tout l'occultisme dévoilé: Médioms, fakirs, voyantes*. Paris: Amiot-Dumont, 1952.
- Trochu, F. *The Curé d'Ars: St. Jean-Marie-Baptiste Vianney (1786-1859)*. London: Burns Oates & Washburn, 1927. (First published in French in 1926).
- Tweeddale, C. L. The passing of Mary Burnett: Wonderful purple light precedes transition. *Light*, 1921, **41**, 551.
- Vega, J. Fotogènesis. *Revista de Parapsicologia*, 1976, **23**, 17-20.
- Vesme, C. de. L'objectivité ou la subjectivité des manifestations supranormales perçues collectivement. *Revue métapsychique*, 1938, No. 3, 161-176; Nos. 4-5, 270-297.
- Vitali, F., Trabacchi, G. C. & De Sanctis, S. Sul fenomeno di Pirano. *La Ricerca Scientifica* (Supplement), 1934, **2**, 183-235.
- Watson, G. C. Singular case of luminous breath. *Lancet*, 1845, **1**, 11-12.
- White, S. E. *The Betty Book*. New York: E. P. Dutton, 1937.
- Whitton, J. L. 'Ramp functions' in EEG power spectra during actual or attempted paranormal events. *New Horizons*, 1974, **1**, 174-183.
- Wilson, S. C. & Barber, T. X. The fantasy-prone personality: Implications for understanding imagery, hypnosis, and parapsychological phenomena. In A. A. Sheikh (Ed.), *Imagery: Current Theory, Research, and Application*. New York: John Wiley & Sons, 1983. Pp. 340-387.
- Wood, A. Notice of a case of alleged luminous appearance on the hand and other parts of the body before death, in a letter to one of the editors. *Northern Journal of Medicine*, 1844, **1**, 368-370.
- Zimmer, C. Bioluminescenz: Leuchterscheinungen an Organismen und bei Medien. *Psychische Studien*, 1923, **50**, 193-210.

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