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HISTORICAL PERSPECTIVE

Telepathic Emissions: Edwin J. Houston on "Cerebral Radiation"

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Abstract—Interest in telepathy during the Nineteenth Century developed in the context of ideas of magnetic, nervous, and psychic forces said to project from the physical body to cause various phenomena, as seen in the literatures of mesmerism, Spiritualism, and psychical research. An article about cerebral radiations authored by American electrical engineer Edwin J. Houston in 1892 is reprinted here and commented upon. Houston speculated that cerebral waves were projected to other brains via the ether, a process involving resonance with a similarly disposed brain. These ideas were affected by concepts from physics dealing with such forces as magnetism and constructs like the ether. In fact, the phenomena of thought-transference stimulated many speculations involving ideas of brain waves and radiations that were part of a tendency to reduce unexplained phenomena to physical and physiological principles, or in this case biophysical ones. Houston's paper is one of the most detailed presentation of ideas of this sort published in the Nineteenth Ccentury. Nonetheless, Houston showed no familiarity with the literature of his time about telepathy. While his article did not originate ideas of this sort, it is representative of speculations of the period about what today we refer to as physical transmission models of ESP.

Keywords: Edwin J. Houston—telepathy—thought-transference—history of telepathy—brain waves—cerebral radiations

Let it be granted that whensoever any action takes place in the brain . . . an atomic movement occurs . . . Let it also be granted that there is . . . [an] "Ether" . . . But if these two assumptions be granted . . . should it not follow that no brain action can take place without creating a wave or undulation . . . in the ether . . . Each acting, thinking brain then would become a centre of undulations transmitted from it in all directions through space . . . with the varying nature and force of brain actions . . .

—James T. Knowles (1869:136)

Introduction

In his book *The Kingdom of Man*, English zoologist and biologist E. Ray Lankester (1847–1929) wrote that wireless telegraphy did not offer support to the idea of thought-transference because:

> the important factors in such human intercourse—namely, a signalling-instrument and a code of signals—have not been discovered, as yet in the structure of the human body . . . (Lankester 1907:88)

The idea of such signals was inspired by the fast popularization during the Nineteenth Century of communication technology and the establishment of various physical processes, such as the various forms of radiation (L'Annunziata 2007). This affected conceptions of psychic phenomena, producing a corpus and conceptual tradition of physical and biophysical ideas that, in turn, were part of attempts to naturalize the unusual during the Nineteenth Century (e.g., Gonçalves & Ortega 2013, Méheust 1999). Such concepts ranged from accepted principles and forces—such as electricity and magnetism—to a variety of unorthodox ideas of human magnetism, nervous and psychic forces, kind of a psychical physics offering explanations for the mental and physical phenomena of psychical research.[1] These ideas were part of modernism, in the sense that various physical and psychical forces were important for technology, for beliefs, as well as for social and cultural developments, including the arts (Enns & Trower 2013).

Such physical transmission ideas are still around, as seen in modern speculations about ESP (e.g., Marciak-Kozlowska & Kozlowski 2013, Vasilescu & Vasilescu 1996). However, speculations involving hypothetical physical, or biophysical processes, were prevalent during the late Nineteenth Century (and even later), which is the topic of this paper, in which I focus on physical explanations of telepathy.

My purpose is to present a reprint of an article relevant to the history of these ideas. It is a paper published in 1892 by American engineer and electrician Edwin J. Houston about speculations of cerebral radiations to explain telepathy. The excerpt presented here is a good example of early examples of physical transmission models of ESP. The article is in fact one of the most detailed discussions of such ideas of the time.

In addition to being a good representative of old transmission models, the paper is of interest as well for other reasons. First, it was written by a prominent individual who was not identified with psychic phenomena, but with other disciplines. Second, the paper, while not widely cited in psychical research circles, was published in several non-psychic American publications, thus helping to popularize psychic phenomena. Third, Houston's article reminds us that, in addition to ideas of nonphysicality and mind–body independence emphasized by some parapsychologists,[2] and certainly prominent both in the past as in the present, the Nineteenth Century also had its share of physicalistic assumptions.

The Context: Forces and Psychic Phenomena

Psychic Forces

Nineteenth-Century physics brought us much information about forces of nature, among them electricity, light, electromagnetism, and concepts such as the ether and the conservation of energy.[3] In his work *When Physics Became King*, Morus (2005) documents how such work transcended scientific circles and influenced society in many ways. I argue, as others have done before (Luckhurst 2002), that this was the case as well with physical concepts and psychic phenomena, in this case telepathy.

The so-called imponderables, principles such as magnetism and electricity that had a subtle physical nature (Heilbron 1993), inspired many speculations about psychic phenomena. An important early one involved the concept of animal magnetism, a universal force interacting with physical and biological matter, discussed by Franz Anton Mesmer (1734–1815; 1779) and by his followers, which formed the movement of mesmerism.[4]

The construct of animal magnetism suggested new ways in which human beings were related to nature, a more intimate connection with the surrounding forces, the forces of existence. This magnetism, Segala (2001) has suggested, connected humans more with the cosmos and was a symbol of universal harmony, while pointing to the idea of the unity of forces. Animal magnetism (Mesmer 1779), which some believed was part of human physiology, and the principle of life itself, was described sometimes as a fluid:

> The magnetic fluid continuously escapes us: It forms an atmosphere around our body . . . which . . . does not act noticeably on individuals around us; but when our will pushes and directs it it moves with all the strength that we impart: It moves like light rays sent out by bodies ablaze. (Deleuze 1813:89; this, and other translations, are mine)

Another mesmerist stated: "Man is a congeries of forces all under the regulation of magneto–electric laws. He is, in fact, a magnet . . ." (Ashburner 1867:193). It was this force, or radiation, or fluid, that was believed to act from the mesmerist to the mesmerized person (or somnambule) and cause healings and other phenomena such as the transmission of the thoughts of the mesmerizer (for a pictorial representation of animal magnetism, see Figure 1).

Many mesmerists believed that magnetized individuals could perceive the thoughts of others. In Italy it was stated that after the magnetizer imparted his vital fluid to his subject, both shared a common vitality that allowed the latter to feel "different sensations experienced by the magnetizer" (Guidi

Figure 1. Illustration of the concept of animal magnetism (Lafontaine 1852).

1854:228). Such transmissions were believed by a mesmerist in the United States to be due to the fact that "the magnetic fluid passes from the brain and eye . . . of the *magnetizer* to the eye . . . and brain of the magnetic somnambulist . . ." (Durant 1837:79). In addition to this literature, and to later neo-mesmeric developments that included the work of Alexandre Baréty (1844–1918) and Julian Ochorowicz (1850–1917) (e.g., Baréty 1887, Ochorowicz 1891), over the years there were many discussions about human radiations to explain various phenomena.

These ideas of nervous and vital forces flourished in the context of Spiritualism and, later, in psychical research. The medium, instead of the somnambule, was the dynamo generating forces to produce all sorts of phenomena, including physical ones such as movement of objects and materializations.[5] As stated in an early classic of table turning:

> If my brain, active as a Leyden jar, emits and directs a fluidic current through my nerves, if the other members of the [mediumistic] chain follow similarly, it is evident that it would not be long for us to form sort of an electric battery, by which the influence will be felt according to our thoughts; we will produce a rotation, we will produce, also at a distance, vigorous liftings. (De Gasparin 1854:Vol. 1:514)

Various physical forces were adopted by Spiritualists to explain mediumistic phenomena. One was electricity, which soon was being discussed in terms of the transmission similarities between telegraphy and mediumship. In one case, mediums were seen as electrical conductors in the production of physical phenomena, acting "on principles strictly analogous to the magnetic telegraph" (Davis 1855:66; see also the discussions of Carroll 1997 and Thurschwell 2001). In turn, these speculations were conceptually related to older concepts (Amadou 1953), and to ideas of electrophysiology (Clarke & Jacyna 1987), and animal magnetism.

Later in the century other forms of radiation were highly influential. In fact the 1890s brought important developments, such as the discovery of X-rays. From the beginning X-rays captured the popular imagination (Knight 1986, Pamboukian 2001), and they were soon connected by many to psychic phenomena such as telepathy (Crookes 1897, Sibley 1898; see also Henderson 1988, Natale 2011). "The discovery of the famous X-rays that pass through opaque materials," wrote a commentator, "could well also put

us on the path to a rational explanation of clairvoyance" (Bois 1896:355). In the same year, another author who was discussing X-rays saw these new radiations as analogous to phenomena such as telepathy and clairvoyance and asked if the latter should also be generally accepted (Bixby 1896:880).

But the 1890s, the decade in which Houston was writing, also brought other ideas of body radiations from psychical researchers. These included: Cesare Lombroso's (1836–1909) belief that cerebral forces could be exteriorized from the body to cause physical phenomena due to the inhibition of centers where that agent was normally used; Hippolyte Baraduc's (1850–1902) studies of instrumental detection of a vital force emanating from the body; and Albert de Rochas' (1837–1914) studies of exteriorization of sensibility (or the projection of a neural principle which had sensation properties) (Baraduc 1893, De Rochas, 1895, Lombroso 1892b). The period also presented the use of photography to show the existence of invisible psychic vibrations and fluids, as seen in the work of Baraduc (1896) and others (e.g., Luys & David 1897).[6]

Thought Transference in the Nineteenth Century

Houston's ideas in the excerpt reprinted below appeared in the context of Nineteenth Century interest in thought-transference (Luckhurst 2002, Wiley 2012). An important development was the experimental study of the subject, initially called thought-reading, mind-reading, thought-transference, and eventually telepathy. Following on the observations of mesmerists and others (e.g., Brittan 1854:Chapter 24), and in the considerable interest brought in by the public performances of mind-readers such as Washington Irving Bishop (1856–1889; Romanes 1881), many tests were conducted by members of the Society for Psychical Research (SPR) in England. Among them were those reported with the Creery Sisters by Barrett, Gurney, and Myers (1882), and several others published through the end of the Nineteenth Century (e.g., Gurney, Myers, & Barrett 1884, Guthrie & Birchall 1883, Lodge 1884). But there was also work conducted in other countries, among them, Italy (Lombroso 1891), France (Richet 1884), and Germany (Schrenck-Notzing 1891).[7]

The results of this research, it is important to say, were criticized by many who argued that the claims for the reality of the transference of thoughts could have alternate explanations, among them fraud, muscle reading, and other sensory perceptions (e.g., Hall 1887, Jastrow 1895). Expressing skepticism, psychologist Edward B. Titchener (1867–1927) stated in *Science*: "No scientifically-minded psychologist believes in telepathy" (Titchener 1898:897).

As seen in the epigraph at the beginning of this paper, an author writing in 1869 in *The Spectator*, published in London, mentioned transmissions

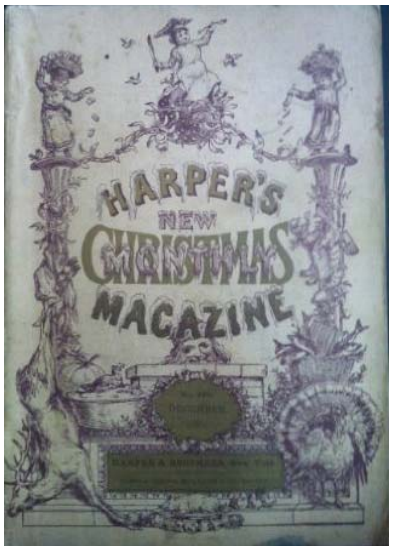

Figure 2. Cover of December 1891 *Harper's New Monthly Magazine* with Mark Twain's "Mental Telegraphy: A Manuscript with a History."

of thought at a distance caused by brain waves moving through the ether (Knowles 1869, see also Andrew 1876 and Despine 1880). Others mentioned the possibility of induction (W. F. Barrett 1876, McGraw 1875). Physicist William F. Barrett (1844–1925) speculated that "just as a vibrating tuning fork or string spends its energy most swiftly when it is exciting another similar fork or string in unison with itself, so the activity of the brain may be more speedily exhausted by the presence of other brains capable of sympathetic vibration with itself" (W. F. Barrett 1882:62).

Many had similar ideas which were published before the paper by Houston discussed here (e.g., C. 1887, Coues 1885, Haig 1874, Mancini 1891). "A candle burning in the night 200 meters away," wrote French physiologist Charles Richet (1850–1935), "produces a very clear light, it seems absurd that at three or four meters of distance cerebral activity shows no action on close-by objects. . . . If we consider this emissive power absurd, it is only because we do not see it" (Richet 1884:668).

In a prominent example about what he referred to as "mental telegraphy," Mark Twain (1835–1910) stated in *Harper's New Monthly Magazine* (Figure 2): "Doubtless the something which conveys our thoughts through the air from brain to brain is a finer and subtler form of electricity . . ." (Twain 1891:101). But such analogies about thought-transference and the telegraph were not new with Twain, having been used or implied before by others (e.g., Brittan 1864, Mitchell 1872). An earlier example was the ideas of a Spanish author who stated that

> [the soul] has in the surrounding electricity a telegraph that is always in immediate contact with our organism which uses it to send the expression of its thoughts to the person it wishes to regardless of distance. (Vergés 1857:14)

Similarly, many others continued discussing such concepts during the 1890s (e.g., Astére 1895, Wagstaff 1892). Lombroso (1892a) wrote about the projection of cortical activity carrying thoughts through the ether. Eng-

lish chemist and physicist William Crookes (1832–1919) speculated on the possibility that the brain may transmit and receive "electrical rays of wavelengths hitherto undetected by instrumental means" (Crookes 1892:95), which may account for thought-transference.

But it should also be stated that not everyone followed physical transmission models. In later writings about telepathy, some of the early SPR researchers were skeptical of explanations such as physical waves or radiations and saw the process as a psychical one, even though this idea did not involve a clear explanation (e.g., Gurney, Myers, & Podmore 1886). "If there really is a physical counterpart to the *fact* of transmission," wrote the authors of the SPR's Third Report of the Literary Committee, "that counterpart remains wholly unknown to us. The physical analogies hitherto suggested for telepathic impulses are aids to imagination and nothing more" (Barrett, Massey, Moses, Podmore, Gurney, & Myers 1884:135). Others, such as Italian physicist Giovanni Battista Ermacora (1869–1898), offered more specific critiques of physical transmission ideas of telepathy (Ermacora 1892). In his view such process was not proven, and the waves, if present, should weaken considerably with distance. He also pointed out that such ideas did not explain the intellectual content and selective nature of telepathy, asking why other people did not receive the transmission as well.

Edwin J. Houston

Edwin J. Houston

Edwin James Houston (1847–1914) was an educator, an electrical engineer, and an inventor.[8] He was born in Alexandria, Virginia, and taught most of his professional life at the Central High School of Philadelphia, where he had earlier obtained a master's degree. He later taught civil engineering there and was given a chair of natural philosophy, which he held until 1914, when he died. It has been said that Houston brought "to his lectures an extensive knowledge of electricity and regularly illustrated them with elaborate apparatus" (Carlson 1991:33).

Houston held many honors. He was a member of the electrical commission appointed by the U.S. government in 1884, President of the American Institute of Electrical Engineers (1893–1895), President of the electrical section of the Franklin Institute, and President of Section C of the Electrical Congress held in Chicago in 1893. In addition he taught physics at the Franklin Institute and the Medico-Chirurgical College, both in Philadelphia. He obtained an honorary Ph.D. from Princeton University in 1894.

Working with English engineer and inventor Elihu Thomson (1853–

1937), Houston developed various projects such as the Thomson–Houston system of arc lightning, and was co-founder of the Thomson–Houston Electric Company in 1883. After many developments, this eventually led to the creation of General Electric in 1892 (Carlson 1991).

Houston authored many books. Some examples are *A Dictionary of Electrical Words, Terms and Phrases* (Houston 1889), *Electricity and Magnetism* (Houston 1893b), and *The Electric Transmission of Intelligence* (Houston 1893a). With electrical engineer Arthur E. Kennelly (1861–1939) as co-author, Houston published various treatises such as *Magnetism* (Houston & Kennelly 1896), *Electric Telegraphy* (Houston & Kennelly 1897), *Electricity in Electro–Therapeutics* (Houston & Kennelly 1898), and *Electric Arc Lighting* (Houston & Kennelly 1906). In addition, Houston was known for his many lectures. In an announcement of a presentation about electricity, he was described as a "most interesting and instructive lecturer" (Anonymous 1892b:540). Another example was a lecture Houston presented at a meeting of the New York Electrical Society in December of 1892, where he covered topics such as early knowledge about magnetism, magnetic effluvia, Faraday's ideas, magnetic induction, methods of magnetization, and causes of the earth's magnetism (Anonymous 1892e).

Like others involved with technology and science in the late Nineteenth Century, Houston had a progressive view. In his Inaugural Address before the Congress of the American Institute of Electrical Engineers, held in New York in 1893, Houston commented on how common electrical technology had become among the public (Houston 1893c). But even though this was taken for granted by many, there was still the possibility of important advancements. This was the case, Houston, wrote, about developments that took place between the Philadelphia International Exhibition (1884) and the World's Fair of Chicago (1893).[9] Houston lived in an era of, and was an active participant in, the rapid technological development of the Nineteenth Century in the United States and elsewhere, as seen particularly in electrical developments, including the internationally known work of Thomas Alva Edison (1847–1931) and Nikolas Tesla (1856–1943) (Carlson 2013, Freeberg 2013).[10]

But Houston's interests went beyond electricity, magnetism, and their associated technologies. This was evident in books he wrote about chemistry (Houston 1883), natural philosophy (Houston 1884), forestry (Houston 1893d), and geography (Houston 1901), as well as in the paper discussed here. In fact his paper about telepathy may be seen as a connection between his general interests and his work with electricity and magnetism, particularly that which related to communication (Houston 1893a, Houston & Kennelly 1897).

Houston does not seem to have published anything about thought-transference before or after he published this paper. The article reprinted here was first presented at a meeting of the Electrical Section of the Franklin Institute in March of 1892 (Anonymous 1892d). Entitled "Cerebral Radiations," it was published in various journals. These include the *Journal of the Franklin Institute* (Houston 1892b), from which I copied the article, as well as the *American Gas Light Journal* (Houston 1892a), *Psychical Review* (Houston 1892c), *La Science Française* (Houston 1892g), *Scientific American Supplement* (Houston 1892d), and *Western Electrician* (Houston 1892e). The author explained thought-transference: "Cerebral energy . . . is dissipated by imparting wave motions to the surrounding ether, and such waves are sent out in all directions from the brain" (Houston 1892b:490).

The Houston Excerpt

Here is most of Houston's (1892b) article.

I have thought it possible that it might interest you to consider some rather wild speculations in which I have indulged for a number of years past, but which I have heretofore refrained from publishing. . . . Although the suggestions I have to offer as a basis for a hypothesis of the mechanism of cerebration, are confessedly incomplete, and, perhaps improbable, yet I have concluded to place them on record as of possible interest to the scientific world . . .

Postulating the existence of the universal or luminiferous ether, which is now generally accepted in scientific circles, and bearing in mind the fact that this ether passes through even the densest matter, as easily as water through a sieve, it follows that the brain atoms or molecules that are here assumed as the cause of cerebration, are completely surrounded by the ether.[11] Now, since the ether is a highly elastic, easily movable medium, it would follow that thought or cerebration, if attended by vibrations, must necessarily develop in the ether wave-motions, which have the brain atoms or molecules for their centres . . .

The exact nature of the motions that are assumed to attend an active condition of the brain must necessarily remain unknown as long as we are ignorant of the exact nature of the mechanism that is moved . . .

Cerebral energy . . . is dissipated by imparting wave motions to the surrounding ether, and such waves are sent out in all directions from the brain, possibly in greater amount, or of greater amplitude from some of the brain openings, as, for example, those of the eyes.

Let us assume, then, that cerebral radiations or waves are given off from every sentient or active brain, and that these waves pass into the space around the brain something like the waves that are imparted to the air around a sounding tuning-fork . . .

If such waves, which I would call thought-waves or cerebral-waves, be present in ether that fills all space, it will be interesting to inquire what phenomena they might be expected to produce . . .

An active brain may . . . be regarded as moulding the ether around it into thought-waves, that are spreading outwards from it in all directions. In this respect, it is not unlike a conductor through which an oscillatory discharge is passing, pro-

ducing those waves which Hertz has so beautifully demonstrated as resembling the vibrations that produce light.

Assume, then, that the cerebral radiations partake of the nature of thermal, luminous, electric, or magnetic radiations, and the following explanation of telepathy, or thought transference, is, to say the least, not improbable.

I would explain the possibility of the transference of specific cerebral vibrations from an active brain, to a passive or receptive brain, by the simple action of what is known in science as sympathetic vibrations.

Take the case of a vibrating tuning-fork sending off its waves across the space which separates it from a second tuning-fork, not as yet in motion, but tuned so as to be able to vibrate in exact unison with it. As is well known, the exact correspondence between the period of the active or transmitting-fork, and the passive or receptive-fork, is such that the vibrations of one fork are gradually taken up by the other fork, so that the energy of the motion of the one is transferred or carried across the space existing between them, by means of pulses or waves, set up in the air which surrounds them . . .

Or, similarly, take the case of the sympathetic vibrations excited by waves of light. Solar energy is radiated or transferred across the space existing between the sun and the earth by waves or oscillations in the luminiferous ether . . .

Or, take the still more interesting case of what Hertz calls electric resonance. As already mentioned, it is now generally recognized by electricians that a conductor, which is the seat of an oscillatory electric discharge, is sending into the space around it electric waves or oscillations which travel with the velocity of light, and which are in fact of exactly the same nature as light itself. If these electric waves meet a circuit so tuned as regards the period of oscillation of the circuit in which they originally occurred, as to be in consonance with them, electric oscillations will be set up in this circuit, of exactly the same nature as those exciting it.

In view of these facts it does not seem improbable to me, that a brain engaged in intense thought should act as a centre of cerebral radiations, nor that these radiations proceeding outwards in all directions from such brain should affect other brains on which they fall, provided, of course, that such brains are tuned to vibrate in unison with them. In such cases the absorption of energy by the recipient brain may be either a species of selective absorption, in which its train of thought is only modified, or it may be absolute, in which case the recipient brain has excited in it an exact reproduction of the thoughts of the exciting brain . . .

If such a hypothesis be true, then these cerebreal [sic] vibrations or radiations must travel through space with exactly the velocity of light. This is of course on the assumption that the vibrating or oscillating brain molecules or atoms set up vibrations similar to those of light. Of course, this equality between the velocity of cerebral wave propagation and that of light is true only for free ether. In the ether which fills the interatomic or intermolecular spaces of gross matter, or, as it is technically called, combined ether, the velocity of wave propagation varies according to the particular character of the matter with which it is associated. A retardation or decrease in the velocity of the assumed cerebral waves would doubtless be experienced while passing through the materials of the skull and head.

If thought travels along waves in the ether similar to waves of light, it would be able to travel along any path by which rays of lights can pass. It can therefore travel along rays of light, i.e. along paths in the ether through which rays of light are moving.

There is a well-known experiment in hypnotism, in which the patient, placed in a state of semi- or complete unconsciousness, has his brain called into a more or less

active condition by the suggestions of the hypnotizer, which might seem to somewhat favor the hypothesis of cerebral radiation.

It might be interesting, in view of the above suggestions, to see whether a hypnotizer placed in such a position as regards the hypnotized that flashes of light falling on his eyes shall afterwards fall on the eyes of the patient, to observe whether or not acts of suggestion are more readily perceived by the brain of the hypnotized along such rays of light than without the aid of such rays.

If the preceding speculations be regarded as wild, and that this is true I have already granted, what may not be said as to the following?

If thought radiations partake of the nature of ether-waves, then there should presumably exist in the thought radiations or waves, phenomena corresponding to the various phenomena of thermal, luminous, electric, or magnetic radiation; even the phenomena of reflection, refraction, and possibly even of dispersion of such waves, would appear to be a possibility. In this connection, it is of interest to imagine the analysis or separation of a complex wave of thought into its component or elementary waves, corresponding to the separation of a beam of light, by means of a prism . . .[12]

If thought radiations or waves partake of the nature of light, then it would seem among the remote possibilities of science—to obtain, say by means of a lens—a photographic impression of such thought-waves on a suitably sensitized plate, somewhat after the manner of the ordinary photo graphic picture.[13] Such a thought-record, suitably employed, might be able to awaken at any subsequent time in the brain of a person submitting himself to its influences, thoughts identical to those recorded.

Of course, I am aware of the improbability of such a record being obtained in the near future, and of the exceeding difficulties that would seem to stand in the way of ever obtaining it.

Until we know something more definite concerning the nature of these assumed cerebral vibrations and of their lengths, we must necessarily be seriously handicapped as how to best permanently fix them on a suitable record-surface, and how afterwards to cause such record-surface to interpret its peculiarities to the brain. I merely throw it out as a possibility of what science may have in store for those who come after us. I would suggest, in this connection, that 100 years ago it would probably have been regarded as quite impossible that the telephone or the phonograph could have been produced.

Such a thought-record, however, if obtained would not be an image of the thought itself, or of the particular groupings of the particles, whose to-and-fro movements attend or produce thought, any more than the tracings of the phonograph record form an image of the spoken words. They would merely represent the to-and-fro motions of the ether set in motion by the thought or cerebrations.

An eye looking at such an image would not be influenced thereby. If, however, ether waves similar to those recorded could be reproduced by causing light to pass through such photographic images of the to-and-fro motions of thought-waves, such waves might be caused to influence the brain and thereby awaken thoughts similar or identical to those recorded . . .

Probably one of the most serious objections to the hypothesis is to be found in the fact that the phenomena of telepathy and thought transference are not of more frequent occurrence. This I must frankly acknowledge to be a most serious objection. I would suggest, however, that the comparative infrequency of the phenomena may possibly be explained by the presence in the human body of a shield which protects

the brain or the nerve centres from the effects of cerebral radiations. It is not impossible the sheathes of the nerves act as screens to prevent the reception by the brain of these thought radiations . . .

If there be any truth in the hypothesis I have briefly outlined, there should be what I would term a kind of vital radiation going on and passing outwards from the body of a healthy person, which may not improbably excite by sympathetic vibrations in the bodies of weaker persons around them, vibrations of a normal or more healthy type than those present in the sick person.

If this be true, the old belief of the efficacy of the laying on of hands, or of magnetic healing, may find some foundation, in fact, apart from what is most probably the general explanation of such causes, viz., hysteria.

I have thrown out the above hypothesis of cerebral radiations with considerable doubt and hesitation as a suggestion only to those working in the field of telepathy or thought transference, in the hope that I may thereby call the attention of such investigators to some phenomena in this very obscure field of research.

Comments About Houston's Paper

Houston's discussion was considered of interest to students of psychic phenomena to the point of being reprinted in the *Psychical Review* (Houston 1892c)[14] and in one of the books of Albert de Rochas (1895:206–216) in which he referred to the vibrations of the "fluid" of a person affecting another. It was also briefly mentioned by Angelo Brofferio (1893:140–141). However, I have not found mention of it in issues of the *Annales des Sciences Psychiques*, the *Journal* and *Proceedings of the Society for Psychical Research*, nor the *Psychische Studien* published between 1892 and 1899. However, some later writers on psychic topics mentioned him briefly (Carrington no date:60–61, Stocker 1906:18, 26).

A commentator in the *English Mechanic and World of Science* agreed with Houston that his ideas were wildly speculative, but stated that "they are based upon proper scientific analogies, and hence must be taken seriously" (Anonymous 1892c:371). Commenting about this in the theosophical journal *Lucifer*, an anonymous author wrote:

> Theosophical students will find them [Houston's ideas] familiar and even elementary, but, as they have often been derided for saying the same thing, they may be amused to see their own teachings welcomed with respect when they fall from lips scientific. (Anonymous 1892f:353)

Being unaware of the serious study of the topic, the commentator in *Electrical Engineer* praised Houston because he believed that the study of psychic phenomena had been left to visionaries. In his view, Houston's ideas "opened an enormous field for labor upon lines already familiar to men skeptical as to spooks, but intensely alive to the importance of all that bears upon the questions of everyday life." He also hoped that Houston

"will not be content to stop at suggestions" (Anonymous 1892a:604, for both quotes).

Houston's article was summarized in French newspapers (Bataillard 1892, Lucet 1892), in the *Revue Scientifique* (Anonymous 1892g), and in the Spiritualist publication *Light*, where the writer merely endorsed Houston's hope that his idea would be considered by researchers in the area (Anonymous 1893). A few years later Reverend T. E. Allen (1895) agreed with Houston's basic idea. Furthermore, the article was listed in bibliographies published during the second decade of the Twentieth Century under the headings of "Theories of the Ether" (Anonymous 1912) and "Thought-Transference" (Anonymous 1913).

Concluding Remarks

Simple transmission models based on radiations and waves such as Houston's have been criticized in the past as failing to explain the evidence for ESP (e.g., Braude 2002:Chapter 4:Section D). Nonetheless, historically it is important to pay attention to ideas such as Houston's because the study of past developments in parapsychology, and of any other scientific field, should not be limited to what is believed today to be correct. To understand the factors that shaped the development of the discipline, and its state in particular periods, it is essential to consider what we label today as superseded or rejected knowledge, and to avoid focusing only on aspects of the past that resemble our current interests and beliefs.[15]

While I do not claim that Houston's article had an important impact on the study of ESP (the reverse seems to be the case), a discussion of its content contributes to our understanding of the assumptions surrounding past ideas on the subject. In this case it is clear that Houston was influenced by the then current concepts of physics (or by extensions of these concepts), which included constructs such as brain-generated radiations and the ether. The influence of physics on parapsychology, it is interesting to see, continues to recent times (e.g., Radin 2006).

Regardless of the few above-mentioned citations of Houston's work in writings about psychic phenomena, including the reprint of the article in *Psychical Review* (Houston 1892c), there is no evidence to say that Houston's ideas were influential in the concepts of others, or that they generated research. While his ideas seem to me more detailed than previous ones, his main postulate, that of brain radiations transferred via the ether, was hardly original. Perhaps Houston would have been more influential if he had addressed his ideas directly to the psychical research community and if he had conducted research himself.

Regarding psychical research, the paper has no reference at all to

Figure 3. Magnetic radiations, (Durville 1921).

previous studies on the topic. Houston's work is, in fact, the work of someone who showed no evidence that he was familiar with the phenomenon he was trying to explain. Nowhere in his paper did he mention the ideas and studies of telepathy published before his article. Knowledge of this literature would have allowed him to discuss the actual things that were believed to be transmitted from mind to mind, including images, thoughts, emotions, and physical sensations. Interestingly, some of this literature, and particularly the work of the SPR, was discussed in many American publications that Houston must have had access to (e.g., Courtenay 1891, Hovey 1885, Prince 1887), not to mention the publications of the SPR.

Many ideas of physical transmission continued to be discussed after the appearance of Houston's 1892 paper in the Nineteenth Century (e.g., Astére 1895, Crookes 1899). Examples of Twentieth-Century discussions include magnetist Hector Durville's (1849–1923) graphic representation of the aura showing the constant reception and projection of "thoughts in the form of rays or waves" (see Figure 3; Durville 1921:82). In addition, there was the research and theories of Naum Kotik (1908) on psychophysical radiant energy and of Italian neuropathologist Ferdinando Cazzamalli (1887–1958) on cerebral waves (Cazzamalli 1925/1926). The radio analogy was discussed by many, perhaps more famously by American author and social activist Upton Sinclair (1878–1968) in his *Mental Radio* (1930).

The well-known French psychical researcher René Warcollier (1881–1962) speculated on resonance and vibrations from the nervous system, and on wireless telegraphy (Warcollier 1938).[16] Ideas of physical transmission exist in more recent times (e.g., Marciak-Kozlowska & Kozlowski 2012, Vasilescu & Vasilescu 1996), but these are outside the range of this paper.[17]

As pointed out before, there were some who were not convinced of the applicability of physical models to explain telepathy (e.g., Gurney, Myers, & Podmore 1886). In fact such thinking characterized most of the early SPR researchers. Initially open to consider physical models, Barrett changed his mind. After writing about the brain wave idea to explain telepathy, he stated that "supernormal phenomena . . . do not belong to the material plane, and therefore the laws of the physical universe are inapplicable to them" (W. F. Barrett 1911:109). Over the years many others opposed wave and radiation models (e.g., Rhine 1934, Tischner 1920/1925). As I have pointed out before (Alvarado 2006), physical transmission models declined in parapsychological circles with the rise of the Rhinean paradigm and ideas from modern physics.[18]

To conclude, Houston's article allows us to see in detail a type of theory that has been prevalent throughout the history of interest in telepathy. In fact his paper is probably the most detailed discussion of the topic in the later Nineteenth Century. Houston's ideas were part of a long conceptual tradition that has been influential both in parapsychological concepts, as well as in popular conceptions of telepathy.

Notes

[1] I have discussed this conceptual tradition in various articles (e.g., Alvarado 2006, Alvarado & Nahm 2011). On physics and psychic phenomena in the British context, see Noakes (2004, 2008). In addition to ideas coming from physics, the concept of telepathy was also part of the late Nineteenth-Century interest in the subconscious mind, as discussed by Luckhurst (2002) and Plas (2000).

[2] Regarding the nonphysicality tradition of previous times, see Alvarado (2009, 2012b). The position is represented today by individuals such as Dossey (2013), Kelly, Kelly, Crabtree, Gauld, Grosso, and Greyson (2007), and Tart (2009).

[3] For overviews, see Buchwald and Fox (2013), Harman (1982), and Purrington (1997). More specific studies include those of Buchwald (1985, 1989) and Smith (1998). Much has also been written about relevant topics such as the ether (Cantor & Hodge 1981), and about cultural aspects of the impact of physics and its associated ideas, practices, and technology (Marvin 1988, Morus 2005, Simon 2005).

[4] On the concept of animal magnetism, and mesmerism in general, see Crabtree (1993), Gauld (1992), and Méheust (1999). A similar concept was Karl von Reichenbach's (1788–1869) Od (Reichenbach 1851), which was considered by some to be the vehicle of telepathic phenomena. A late example of this was German philosopher Carl du Prel (1839–1899) in his *Die Magie als Naturwissenschaft* (du Prel 1899). Relevant to this paper is his discussion of wireless telegraphy and telepathy (Vol. 1:20–34).

[5] There are many examples of the use of the concept of nervous and vital forces to explain physical mediumship (Alvarado 2006). This includes authors writing in France (Chevillard 1869), England (Cox 1872), Germany (von Hartmann 1885), and the United States (Rogers 1853), among others. Years later German physician Albert von Schrenck-Notzing (1862–1929) discussed mediums and referred to "an emanation or projection [of] vital energies beyond the limits of the human organism" (Schrenck-Notzing 1920:180).

[6] This, in turn, was part of the wide use of photography in Nineteenth-Century science to make visible the invisible (Canguilhem 2004, Keller

2008). In fact the topic of "photography of the invisible"—both in conventional science and in psychic studies—has an interesting scientific and cultural history (Nowotny & Weiss 2000). These developments also follow on early attempts to photograph spirits, thoughts, and "fluids" (Chéroux, Fischer, Apraxine, Canguilhem, & Schmit 2005).

[7] Ermacora (1898) and Podmore (1894) present overviews of this work. They cover observations in the normal and in the hypnotic state, as well as the transference of images, feelings, sounds, and tastes, and the induction of trance at a distance. Some of the early SPR work with the Creery Sisters was qualified later when evidence for fraud was obtained (Gurney 1888:269).

[8] For biographical information, see Anonymous (1906, 1911, 2013).

[9] The World's Columbian Exposition—also known as the Chicago's World Fair—had remarkable exhibits of electrical instruments, showing the progress in that area (J. P. Barrett 1894). Some of the exhibits, and the then current technology, included incandescent and arc lighting, dynamos, motors, switchboards, telegraphy, telephony, electro-therapeutics, batteries, and clocks. Connected to the Exposition was the International Electrical Congress. Houston was a member of the Electrical Congress' Advisory Council, and Chairman of its Section C (Pure Practice) (Anonymous 1894:v, 338).

[10] On late Nineteenth-Century electrical developments, and particularly in the United States, see Carlson (1991), Freeberg (2013), Klein (2008), and Marvin (1988).

[11] As mentioned before, the ether was considered before by others in relation to thought-transference (Andrew 1876, Despine 1880, Knowles 1869, Lombroso 1891). The idea of the ether was not only important for the transmission of physical signals, but was also involved with political and religious issues (Noakes 2005).

[12] According to Mesmer (1779), animal magnetism was "augmented & reflected by mirrors" (p. 78). See also Barety's (1887) studies of animal magnetism, or neural force, in relation to a prism (pp. 14, 16–17) and to refraction on things such as mirrors (pp. 12, 110, 302–303).

[13] Referring to the brain waves mentioned in the epigraph, Knowles (1869) speculated on their photographic detection and on the possibility of obtaining a "dim portrait of thought" (p. 136). On the use of photography in Nineteenth-Century science to detect invisible processes and various forms of psychic photography, see Note 6. See also Reichenbach's (1862) early attempts to photograph Od. Houston (1892f, 1892h) showed interest in the use of photography, as seen in his discussions of the configuration of magnetic fields using photography of iron fillings. Consistent with his

interest in technology (e.g., Houston 1888, 1893b, Houston & Kennelly 1897), Houston continued to speculate about technological ways to record thoughts. Discussing future developments related to electricity, he mentioned that he saw "dimly outlined through the clouds, an apparatus for the automatic registration of unwritten, unspoken thought" (Houston 1894:199). Interestingly, there were other Nineteenth-Century discussions of the instrumental recording of thoughts (Anonymous 1896, 1897). Somewhat related were Alexander Graham Bell's (1847–1922) speculations about the transference of thoughts via electricity in two persons wearing helmets connected with wires (Moffett 1893:41–42).

[14] The *Psychical Review* was published by the American Psychical Society (not to be confused with the American Society for Psychical Research). Its officers for 1892 were writer Hamlin Garland (1860–1940) (President), journalist Benjamin O. Flower (1858–1918) (Vice-President), and Reverend Thomas E. Allen (1858–1930) (Secretary and Treasurer).

[15] On this topic, see Alvarado (2012a:619–621).

[16] The historically minded reader may remember many other early Twentieth-Century speculations (Alvarado 2008). One was French physiologist Charles Richet's (1850–1935) vague idea of vibrations to explain the sixth sense:

> The sixth sense is that one which gives us knowledge of a vibration of reality, a vibration which our normal senses are unable to perceive. (Richet no date/1928:224).

For the ideas of Hans Berger (1873–1941), see Millett (2001). More interesting, but less well-known, was French physician's Charles Binet-Sanglé's (1868–1941) belief in brain waves:

> Each thought corresponds to a particular system of ethereal waves. . . . In this way, by means of brain waves, every thought of the radiant brain awakens the same thought in some people. . . . In my view, the direct transmission of visual images is but a particular case of telephotography, the direct transmission of auditory images, a special case of wireless telephony. (Binet-Sanglé no date:25)

[17] It has not been possible to discuss in detail the vast early Twentieth-Century popular literature discussing telepathic vibrations, waves, and the like. This includes little-known works such as *Practical Mind Reading* (Atkinson 1908), *Telepathy, Mental Telegraphic Communication* (Stocker 1906), and *The Call of the Soul* (Freyer 1926). There were also several articles in magazines, among them one in the Catholic review *America*, where one author stated:

> Since the brain, however, is the seat of thought and consists of cells, there is no obvious reason why the activity of those cells could not cause a subtle wave and eject it into the outside world. (Murphy 1915:88)

[18] On ideas of nonphysicality of the Rhinean paradigm, see Rhine and Pratt (1957) and Zingrone (1985). It is not possible to discuss here the influence of physics on modern parapsychology, but see Oteri (1975).

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