5 Expertise in Physics and Psychics

In late 1884, Edmund Gurney temporarily stepped back from his laborious SPR investigations into hypnotism, mesmerism and apparitions to write an incisive analysis of the problem of expertise in psychical research. Published in that leading forum of Victorian intellectual debate, the *Fortnightly Review*, Gurney's article opened by suggesting that the fledgling field of study seemed to be unique in one "unfortunate" way: its "surprising facts" had neither interested nor constituted much of a "direct opportunity" to scientists.[1] The first people to be convinced by the "facts" had not been scientists, but those lacking "intellectual superiority" and "some special aptitude for observation or power of reasoning".[2]

The situation hardly surprised Gurney. Since so many psychical phenomena were difficult to see and control, the "method of direct experimental treatment" was hardly ever appropriate, so practitioners of the "physical sciences" were deprived of the "customary method of vindicating their authority".[3] Yet apparitions, haunted houses and other psychical phenomena had interested and been investigated by vast numbers of scientifically untrained individuals for millennia. In a situation where the "ordinary rules of experimental procedure" were often useless, psychical research had arrived at truths by

> something which is both more and less than laboratory and hospital experiences. The method is wider but less precise, more various but less technical; and the application of it demands disengagedness and common-sense rather than any special aptitude; where phenomena cannot be commanded at will (as is the case in some of the more striking departments of our research), the work of investigating them must consist, not in their origination, but in the collecting, sifting and bringing into due light and order, of experiments which Nature has from time to time given ready-made. And the due estimation of these depends, in the

[1] Edmund Gurney, 'The Nature of Evidence in Matters Extraordinary', *Fortnightly Review*, vol. 22 (1884), pp. 472–91, p. 472.
[2] Gurney, 'Nature of Evidence', p. 472. [3] Gurney, 'Nature of Evidence', p. 477.

broadest sense, on the due estimation of testimony; on what may be called historical, as opposed to experimental, methods of enquiry.[4]

Gurney did not deny that "laboratory" and "hospital" experiences had value in a "definite corner" of psychical research.[5] In a significant concession to the well-known arguments of Carpenter and others that mesmerism and spiritualism were areas where trained scientific expertise carried the most weight, he explained that the physician could rightfully claim authority on the manifestations of hysteria and that somebody of Faraday's technical skill could devise experiments revealing something hidden to the untrained eye: unconscious muscular action causing table-turning. Yet it was not surprising that Gurney should privilege the "common sense" and "historical" over the "experimental" approaches. His ongoing work of collecting, sifting and interpreting thousands of cases of visual and auditory hallucinations was proving more fruitful in evidencing what the SPR called "spontaneous" telepathy than elaborate tests of thought-reading in showing "experimental" telepathy.[6]

The kind of expertise that Gurney and fellow SPR members judged appropriate in psychical research was problematic because of its perceived lack of scientific credibility. Gurney wanted to "protest in the strongest manner against the idea that knowledge, because it is not experimental, is essentially unscientific", and cited the scientific "spirit" shown by "recent anthropology and history" as a useful challenge to those who identified science with a "command of technical appliances" or theoretical and conceptual disputation.[7] Psychical research depended much more on "general sagacity" and "educated common-sense" than these attributes of trained scientific expertise, and on this basis had the potential to develop an independent scientific mode of arriving at truth.[8]

Many leading SPR members agreed with Gurney that expertise in psychical research could not depend solely on that arising from scientific and medical training. In 1889, for example, Henry Sidgwick remarked that the improbability of the kinds of marvel coming under the SPR's remit needed to be weighed in the "rough scales of common sense" rather than those of "exact science", and assessing the value of the testimony for such marvels required abilities in textual criticism and conjuring.[9] Twenty-five years later, the businessman and long-serving SPR secretary J. G. Piddington had similar reasons for declaring that "educated

[4] Gurney, 'Nature of Evidence', pp. 481–2. [5] Gurney, 'Nature of Evidence', p. 478.
[6] The distinction between these forms of telepathy was discussed in Gurney, Myers and Podmore, *Phantasms of the Living*.
[7] Gurney, 'Nature of Evidence', p. 483. [8] Gurney, 'Nature of Evidence', p. 483.
[9] Henry Sidgwick, 'The Canons of Evidence in Psychical Research', *PSPR*, vol. 6 (1889–90), pp. 1–6, p. 4.

people", rather than more specifically trained scientists, were the "proper court of appeal" in psychical matters.[10] As we saw in Chapter 4, in the early 1870s Sidgwick had been genuinely excited by the prospects of experimental physicists investigating the physical phenomena of spiritualism, but by the late 1880s, the prospects of this area of psychical research seemed bleak owing to a string of disappointing and apparently fraudulent performances by mediums whose forte was the production of physical effects. For the SPR's leadership, this would have given weight to Gurney's argument that some types of psychical phenomena were not fit subjects for the "direct" experimental methods of the physical sciences because they were so difficult to control. Accordingly, the value of physical scientists in the SPR stemmed more from their general intellectual lustre than the particular expertise they could bring to sites of psychical enquiry.

However, the experimental investigations analysed in Chapter 4 suggest that many physical–psychical scientists did not think that there was such a gulf between specialist scientific and psychical forms of expertise. Long after the SPR was founded, they were still defending some "definite corner" of psychical research where they believed phenomena were easier to see and control and where trained scientific expertise had proved, and would continue to prove, valuable.[11] Most critical of Gurney's position was Lodge, who, in his presidential address to the SPR in 1903, took the controversial step of insisting that the organisation could not always rely on the spontaneous kind of psychical occurrences that lent themselves to Gurney's more passive, observational, taxonomic and literary kinds of psychical expertise. As someone who had spent several decades teaching and making a professional reputation from experiment, Lodge was bound to insist that "we shall not make progress in understanding the laws of the phenomena and in disentangling their deeper meaning if we confine ourselves to observation alone. We must experiment, we must endeavour to produce and examine phenomena as it were in a laboratory and submit them to minute investigation".[12]

The difficulties that Lodge and others had experienced in subjecting the often capricious and evanescent physical phenomena of spiritualism and od to the regimes of a laboratory were clearly not good enough reasons to neglect such phenomena, which, for all their problems, had more potential to appeal to those scientific audiences who upheld experiment as an epistemically privileged form of natural enquiry. Neither had these difficulties shifted Lodge significantly from his earlier position that

[10] J. G. Piddington, 'Presidential Address', *PSPR*, vol. 34 (1924), pp. 131–52, p. 139.
[11] Gurney, 'Nature of Evidence', p. 478. [12] Lodge, 'Presidential Address', p. 9.

while psychical research was relevant to many different scientific and medical fields of enquiry, it involved types of phenomena whose elucidation needed to be led by physicists. In a 1906 issue of the same journal that published Gurney's 1884 article, he suggested that a physicist could take a commanding role in solving problems of certain "rather elusive phenomena" by combining the functions of a lawyer, medical doctor, psychologist and biologist, whether by learning their skills or cooperating with them.[13]

Lodge's defence of the place of the physicist in psychical research was only the latest in a series of interventions by physical–psychical scientists in the long and often fierce debates about what kinds of expertise were relevant to the satisfactory unravelling of psychical puzzles. Historical and sociological studies of scientific controversy have shown that disputes about the reality of phenomena are frequently disputes about the expertise of those declaring evidence for such phenomena.[14] This entanglement was spectacularly exhibited in the controversies sparked by the experimental investigations examined in Chapter 4. The burden of this chapter is to better understand the reasons why these episodes generated such mixed responses from key audiences including spiritualists, psychologists, psychical researchers, conjurors and physicists. We shall see that different kinds of critics converged more than they might have imagined on the key issues: for often radically different reasons, they agreed that it was physical scientists' forms of expertise and use of instruments that ultimately threatened their claims to authority in psychical investigation.

In many ways, we should not be surprised by the identity of the physical–psychical scientists who were most outspoken in their defences of the legitimacy of physical expertise in psychical matters. These were the same individuals who, in the very period when they launched such defences, were especially active in helping to define and raise the profile of the physical sciences through institutional, pedagogical and literary enterprises. Barrett, Crookes, Stone and Varley were founder members (in 1874) of the Physical Society of London, whose official objective was to "promote the advancement and diffusion of the knowledge of physics" among academic physicists, electricians, school teachers and others and

[13] Lodge, 'Scientific Attitude to Marvels', p. 460.

[14] The classic studies include H. M. Collins, *Changing Order: Replication and Induction in Scientific Practice* (London: Sage, 1985); Cooter, *Cultural Meaning*; Martin J. S. Rudwick, *The Great Devonian Controversy: The Shaping of Scientific Knowledge Among Gentlemanly Specialists* (Chicago University Press, 1985); James A. Secord, *Controversy in Victorian Geology: The Cambrian-Silurian Dispute* (Princeton University Press, 1986); Steven Shapin and Simon Schaffer, *Leviathan and the Air Pump: Hobbes, Boyle and the Experimental Life* (Princeton University Press, 1985).

to provide a platform for research and pedagogical topics that fell outside the remit of existing scientific societies.[15]

Only three years before he took part in the foundation of the Physical Society, Varley had helped establish the Society of Telegraph Engineers (STE). The STE was founded to promote the advance of telegraphy and electrical science in general, enterprises which the founders believed were of immense industrial, economic, political and cultural significance and yet were not properly represented in existing learned societies.[16] Like other founder members, Varley rejected perceptions that the new society might be too specialist to ensure its longevity.[17] By encouraging papers from "all those sciences where electricity plays an important part", he insisted, the STE had a supreme opportunity to take electrical science from the narrow telegraphic "groove into which it seemed to be drifting" into one truly symbolising its presence in "every operation in nature".[18] By 1889, when the STE rebranded itself the Institution of Electrical Engineers, it had no doubt about its image as an organisation that had escaped from its narrow telegraphic origins. Among those electrical sciences with which the STE eventually engaged were medicine and physiology, and it is not surprising to find that contributors to debates on these subjects included such physical–psychical scientists as Coffin, Desmond Fitzgerald, Kilner and Stone, who were also interested in the question of whether electricity might operate at the subtler, psychological level of nature.[19]

For some physical–psychical scientists, the tasks of the Physical Society and STE to define the subject matter of physics and electrical science also drove what they did as teachers, popular lecturers, textbook writers and contributors to non-specialist periodicals. The definitions that they gave often depended on the specific role they were discharging. In their university lectures and textbooks, for example, Barrett, Lodge and Stewart helped promulgate the idea that the study of physics was the study of matter, motion and energy and accepted that the fledgling scientific

[15] Objectives quoted in Lewis, *Promoting Physics*, p. 14. See also Gooday, 'Periodical Physics'.

[16] Appleyard, *History of the Institution of Electrical Engineers*; W. J. Reader (with Rachel Lawrence, Sheila Nemet and Geoffrey Tweedale), *The Institution of Electrical Engineers, 1871–1971* (London: Institution of Electrical Engineers, 1987).

[17] See views of C. W. Siemens and W. H. Preece in [Anon], 'The Society of Telegraph Engineers', *Journal of the Society of Telegraph Engineers*, vol. 1 (1872–3), pp. 19–39.

[18] Cromwell F. Varley quoted in [Anon], 'Society of Telegraph Engineers', p. 34.

[19] See remarks by Coffin, Fitzgerald, Kilner and Stone in [Anon.], 'Discussion on Dr. Stone's Paper', *Journal of the Society of Telegraph Engineers*, vol. 11 (1882), pp. 118–28.

discipline formally sidestepped questions of life and mind.[20] But in research papers, addresses to learned societies and semi-popular writings they explicitly challenged, and encouraged the interrogation of, the disciplinary boundaries reinforced in these pedagogical contexts. Those of Lodge's undergraduate students who attended his opening address to the Liverpool Physical Society in 1889 would have been intrigued to find that in this forum, he represented physics as an enterprise that was much more open to physiology and questions of vitality than was apparent from the lectures and textbooks for his physics courses.[21]

Scourging Spiritualists and Scientists

The conceptual, theoretical and experimental interventions in psychical debates that we explored in Chapters 3 and 4 carried with them implicit arguments that expertise in physical sciences was both relevant to and authoritative in the solution of psychical puzzles. Crookes's spiritualism manifesto of 1870, however, was one of several interventions in which physical–psychical scientists made these arguments *explicit*, and these sometimes involved stark comparisons with 'unscientific' spiritualists. As we shall see in this section, whether or not these arguments were implicit or explicit, they were not persuasive and prompted much critical assessment, by spiritualists and others, of the value of physical expertise in psychical matters per se.

Crookes was certainly not alone among physical–psychical scientists in expressing serious doubts about the scientific credibility of spiritualists' methods and claims. In 1895, Heaviside revealed to Lodge that he had only met two spiritualists in his life and "both talked a lot of bastard science".[22] Barrett was one of the few scientists prepared to direct this kind of concern directly to spiritualists, albeit more diplomatically. When, in 1877, he turned to the spiritualist press to help him amass genuine cases of thought-reading, he took the opportunity to ask the editors to "scourge" those readers who "habitually abuse scientific phraseology".[23]

[20] William F. Barrett and W. Brown, *Practical Physics: An Introductory Handbook for the Laboratory* (London: Percival and Co., 1892); Oliver Lodge, *Elementary Mechanics: Including Hydrostatics and Pneumatics* (London: W. & R. Chambers, 1879); Balfour Stewart, *Lessons in Elementary Physics* (London: Macmillan and Co., 1872).

[21] Lodge, 'Presidential Address to the Liverpool Physical Society'; *University College, Liverpool. Calendar for the Session 1886–1887* (Liverpool: Adam Holden, 1886), pp. 73–82.

[22] Oliver Heaviside to Oliver Lodge, 11 January 1895, MS Add. 89/50(ii), No. 91, OJL-UCL.

[23] William F. Barrett, 'A Letter from Professor Barrett', *Medium and Daybreak*, vol. 8 (1877), p. 209.

Insisting that their "ridiculous" appropriation of the terms electricity and magnetism fostered the "derision of scientific men for subjects that deserve patient investigation", the academic professor gladly accepted an invitation to be "didactic" before a new audience and explain the etymology and proper scientific use of the terms.[24]

For some spiritualists, however, these physics lessons were neither convincing nor welcome. For the veteran mesmerist and spiritualist Henry Atkinson, Barrett's abrasive tone was at least as objectionable as his attempt to police the use of words whose meaning was more flexible than the professor was prepared to allow.[25] Barrett's approach would have done little to persuade Atkinson that he differed significantly from older physicists in their unsympathetic attitudes towards spiritualism. Indeed, when, in the 1870s and 1880s, Barrett, Crookes and other physical–psychical scientists first engaged with spiritualists, they faced audiences for whom Faraday, Brewster and, above all, Tyndall captured many of the worst qualities exhibited by scientific investigators of spiritualism. Faraday still embodied the arrogance of the physicist who embarked upon investigations with firm ideas regarding the naturally possible and impossible.[26] He and Brewster represented the blinkered vision of a physicist who refused to accept testimony (including their own) of phenomena that challenged such ideas of the possible.[27]

Tyndall embodied all these vices and a good deal more. Spiritualists were generally more vexed by his conduct in seances and contemptuous attitude towards spiritualism than the perceived materialism of his addresses and essays, which some spiritualists believed revealed a humble acceptance of the difficulty of reducing mind to matter and force.[28] Few spiritualists were more frustrated by Tyndall's behaviour than William H. Harrison, who, as a contributor to scientific and

[24] Barrett, 'Letter from Professor Barrett'; William F. Barrett, 'The Words "Magnetism" and "Electricity" – Their Use and Abuse', *Human Nature*, vol. 9 (1877), pp. 430–1, p. 431. Desmond Fitzgerald wrote a similarly 'didactic' article about the conservation of energy: see Desmond G. Fitzgerald, 'The "Conservation of Energy" in Relation to Certain Views of the Theosophists', *Spiritualist*, vol. 12 (1878), pp. 249–51.

[25] Henry G. Atkinson, 'Animal Magnetism', *Human Nature*, vol. 9 (1877), p. 384.

[26] [Anon.], 'Spiritualism Viewed by the Light of Modern Science, by W. Crookes, F.R.S', *Spiritual Magazine*, vol. 5 (New Series) (1870), pp. 375–81; S[ophia] D[e] M[organ], 'Scientists and Spiritualism', *Light*, vol. 7 (1887), pp. 117–18.

[27] [Anon.], 'The Sense of Identity – Materialistic Explanations of Spiritualism', *Spiritual Magazine*, vol. 5 (New Series) (1870), pp. 429–32; [Anon.], 'Spiritualism in Accord with True Science', *Light*, vol. 5 (1885), p. 464; Robert Chambers, *Testimony: its Posture in the Scientific World* (London: William and Robert Chambers, 1859).

[28] [Anon.], 'The Psychological Society on the Fundamental Nature of Matter', *Spiritualist*, vol. 7 (1875), p. 301; J. Page Hopps, 'Professor Tyndall's Excursions into Spiritualism', *Light*, vol. 14 (1894), pp. 67–9; Epes Sargent, *The Scientific Basis of Spiritualism* (Boston: Colby and Rich, 1881), pp. 68–9.

technical periodicals, had long admired the physicist's performances as a lecturer. Tyndall's notorious essay of 1864, 'Science and the Spirits', gave Harrison plenty of reasons to doubt the capacity of *any* physicist to be a serious investigator of or an authority on spiritualism. Tyndall's implicit hostility to spiritualist beliefs and breach of the critical seance condition to remain a passive observer evidently prompted him to declare in 1875 that "[s]piritualists who 'understand conditions', will of course learn more about the nature of manifestations than can possibly be done by disbelieving physicists who break conditions, and scientific discovery will be far more rapid in the hands of Spiritualistic investigators, than in the hands of outsiders".[29] And it was Tyndall's evident ignorance of a subject on which he claimed authority that inspired Harrison to complain that "physicists assume that they know all about the manifestations and have them at their command, whereas the intelligence producing them does not intend to be at their beck and call".[30]

Many spiritualists joined Atkinson in questioning whether younger physical–psychical scientists were much better. In their early engagements with psychical topics, Barrett, Crookes and Lodge occasionally seemed to resemble Faraday, Brewster and Tyndall in arrogantly claiming authority on a subject about which they seemed to possess little knowledge and in not deferring to the conclusions of more experienced investigators of the past and present.[31] Eleven years after his tussle with Atkinson, Barrett found himself attacked by leading spiritualists for embodying what they perceived to be the SPR's overly critical, elitist and ultimately ill-judged approaches to mediumistic phenomena. Desmond Fitzgerald, one of a handful of physical–psychical scientists who explicitly defined himself as a spiritualist, warned Barrett in 1886 that the "principles and methods of the exact physical sciences" that he, Myers and others tried to apply to spiritualistic phenomena might have the "ear of a large section of the educated and thinking public" but were unlikely to persuade older spiritualists who boasted "incomparably greater" experience and who therefore constituted the SPR's "teachers".[32]

[29] Harrison quoted in [Anon.], 'The National Association of Spiritualists', *Spiritualist*, vol. 6 (1875), pp. 122–6, p. 125.

[30] Harrison quoted in [Anon.], 'Transactions of the National Association of Spiritualists', *Spiritualist*, vol. 8 (1876), pp. 174–7, p. 175. See also [William H. Harrison], 'Professor Tyndall at a Spirit Circle', *Spiritualist*, vol. 1 (1869–71), pp. 156–7.

[31] [Anon.], 'Professor Barrett on "Thought Reading"', *Medium and Daybreak*, vol. 17 (1886), p. 157; [Anon.], 'Spiritual Science. Spiritualism and the British Association', *Medium and Daybreak*, vol. 22 (1891), pp. 547–9; [James Burns], 'Spiritualism and Science', *Medium and Daybreak*, vol. 1 (1870), p. 108.

[32] Desmond G. Fitzgerald, 'Spiritualism and the Society for Psychical Research', *Light*, vol. 6 (1886), pp. 62–3, p. 63. Varley had also declared himself a spiritualist in Cromwell F. Varley to Alfred R. Wallace, 28 January 1869, ff. 47–50, Add. 46439, ARW-BL.

Crookes's spiritualist manifesto of 1870 prompted a form of spiritualist critique that was never levelled at the older physicists. His privileging of mechanical over other forms of test seemed hopelessly inadequate to address spiritualism's psychological and spiritual questions. "Could all the paraphernalia of Mr. Crookes's workshop reveal to him the presence of a spirit?", rhetorically asked a contributor to the *Medium and Daybreak*.[33] The answer was ultimately negative because the "chemist and electrician may be of great service in investigating the nature of the means used and the material phenomena developed by spirit power, but they can never ascend to the cause, which is far above their sphere of action".[34] The answer also reflected the fact that for many spiritualists, the 'higher' psychological and spiritual aspects of spiritualism were ultimately more important than the 'lower' physical and 'phenomenal' aspects, useful as the latter were in attracting newcomers and converting sceptics.[35] Those whose minds could only apprehend the phenomenal aspects or who relied too heavily on material apparatus were of limited use in the science of spiritualism.[36]

The true spiritualistic scientist was one whose chief instrument was a mind attuned to the delicate psychological conditions of seances and which could apprehend spiritualism's higher aspects. The situation was succinctly expressed in the *Medium and Daybreak*, which, as a leading forum of plebeian spiritualism, voiced the more extreme misgivings of spiritualists towards the approaches of elite scientists, doctors and intellectuals towards their subject.[37] In its critique of Crookes's manifesto, it reassured readers that the "rudiments of a 'science of Spiritualism' is dawning, but it is not on the 'scientific' horizon: it is amongst those who, from aptitude or inclination, give their attention to the subject, acquainting themselves with its facts and their modes of working, and who, to a great extent, have been able to determine laws and conditions for the regulation of the phenomena".[38] Spiritualism was far from being the only form of occultism where these aptitudes and inclinations were contrasted with instrumental ways of knowing. In 1910, William

[33] [Anon.], 'About Scientific Spiritualism', *Medium and Daybreak*, vol. 1 (1870), pp. 201–2, p. 201. A similar problem was identified in a leading spiritualist newspaper over forty years later: [Anon.], 'Science and Spirit', *Light*, vol. 33 (1913), p. 246.
[34] [Anon.], 'About Scientific Spiritualism', p. 201.
[35] Remarks of N. Kilburn in [Anon.], 'National Jubilee Conference of Progressive Spiritualists', *Medium and Daybreak*, vol. 3 (1872), pp. 341–4, p. 341 and D. D. Home, *Lights and Shadows of Modern Spiritualism* (London: Virtue and Co., 1877).
[36] Hardinge, 'Scientific Investigation of Spiritualism'; William H. Harrison, 'The Scientific Research Committee of the National Association of Spiritualists', *Spiritualist*, vol. 9 (1876), pp. 193–4.
[37] On the *Medium and Daybreak* see Barrow, *Independent Spirits*, chapter 5.
[38] [Anon.], 'About Scientific Spiritualism', p. 201.

Kingsland spoke for most modern Theosophists when he explained that the methods of "Occult Science" were "diametrically opposed to those of Modern Science, for it does not rely upon mechanical contrivances, but works by the development within the individual himself of higher powers and faculties, by an expansion".[39]

Leading physical–psychical scientists were able, however, to commend themselves to spiritualists by what they claimed from, and how they pursued, their psychical investigations. In general, they were praised rather than criticised for the obvious reason that their investigations seemed to support a range of spiritualist teachings, but also because they seemed to have humbly accepted that the methods of the physical sciences were not always appropriate in spiritualistic enquiries. Spiritualists would certainly have welcomed Barrett's concession of 1886 that the "very nature" of psychical phenomena might "prevent our ever obtaining the *kind* of evidence that physical science demands".[40] Many accepted that, for all the limitations of their training and laboratory apparatus, some of the younger generation of physical–psychical scientists behaved more appropriately in seances than had Tyndall. Even James Burns, hardly the greatest friend of scientists in seances, was moved to comment in 1875 that in his electrical tests of Annie Eva Fay, Crookes was so "considerate and gentle to everyone" that it was no longer clear that all scientists were the "pronounced enemy of spiritualistic experiments, a terror to mediums, and a source of annoyance to the experienced Spiritualist".[41]

The problem for Crookes and other scientists was that "considerate and gentle" conduct could also be seen by spiritualistic supporters and critics alike as a serious threat to scientific objectivity. The sight of Crookes walking arm-in-arm with 'Katie King' prompted one spiritualist enquirer, Charles Maurice Davies, to conclude in 1875 that the "effusive Professor" had "'gone in' for the Double" of Florence Cook with a "prejudice scarcely becoming an F.R.S."[42] The stage magician John Nevil Maskelyne helped himself to this very quote in his own swipe at Crookes's use of poetry to describe 'Katie's' beauty and his clasping of the materialised spirit in his arms, both of which demonstrated a scientist "much too far gone for 'investigation'" of any medium.[43]

Given the extent to which spiritualists privileged 'higher' psychological and spiritual ways of knowing, it is hardly surprising that followers who

[39] Kingsland, *Physics of the Secret Doctrine*, p. vi.
[40] Barrett, 'On Some Physical Phenomena', p. 39.
[41] [Burns], 'Scientific Séance', p. 163. See also James Burns, 'Professor Tyndall and the Spiritualists', *Human Nature*, vol. 2 (1868), pp. 454–6.
[42] Davies, *Mystic London*, p. 319. [43] Maskelyne, *Modern Spiritualism*, p. 145.

recognised the value of instrumental tests in understanding seance manifestations were in a minority and tended to be those 'scientific' spiritualists such as Coffin, Harrison, Fitzgerald and Varley who believed that there remained physical and physiological puzzles associated with mediumship that could profitably be studied with the skills and instruments of the established sciences. Many were actively involved in some of the experimental investigations discussed in Chapter 4 and in 1876 helped found the Experimental Research Committee of the British National Association of Spiritualists (BNAS). Based primarily in rooms at the BNAS's Bloomsbury headquarters, the Committee occasionally used instruments to study phenomena accompanying the mediumistic trance.[44] The Committee certainly represented one vision of how to "push on Spiritualism as a science", as its chief publicist put it in 1876, but this was a science that was only slightly more dependent on the established sciences than other visions of scientific spiritualism.[45] Ultimately, this attempt to embrace instrumental ways of knowing was too dependent on the support of a small number of spiritualists to be sustainable in the long run. Serious disputes within the BNAS over finances, management and publicity led in 1881 to the resignation, from the BNAS, of Harrison and other members of the Experimental Research Committee, which seems to have dissolved shortly afterwards.[46]

For members of the BNAS's Experimental Research Committee who joined the SPR in the early 1880s, the new organisation may well have looked like a better venue for the kind of scientific spiritualism that they wanted to develop because it attracted vastly more professional scientists than did the BNAS.[47] As Fitzgerald's remarks illustrate, their problem was that they found the SPR's attitude towards spiritualists, and especially spiritualist practices, overly hostile. Barrett had stronger links with spiritualists than did most late-nineteenth- and early-twentieth-century scientists and publicly welcomed spiritualists as "fellow-workers in the great laboratory of nature", but even he believed they had much to learn about the "methods of research" that "*science* demands".[48] But Barrett and other physical–psychical scientists were sufficiently humble to acknowledge that they needed to learn which of these methods best suited psychical research.

[44] Harrison, 'Weighing a Medium'. The Committee included Coffin, Fitzgerald, Harrison, Varley and the physician George Carter Blake.
[45] Harrison, 'Scientific Research Committee', p. 193.
[46] On the BNAS's internal conflict see Geoffrey K. Nelson, *Spiritualism and Society* (London: Routledge, 1968), pp. 107–10; Oppenheim, *Other World*, pp. 54–6. For the abandonment of the Committee's experiments see [William H. Harrison], 'Experimental Research in Spiritualism', *Spiritualist*, vol. 19 (1881), p. 162.
[47] These were Fitzgerald, Coffin and the barrister Charles Carleton Massey.
[48] Barrett, 'Society for Psychical Research', p. 52.

It was in disputes with adversaries intellectually far weightier than any encountered among spiritualists that they rose to defend how much these methods owed to the physical sciences.

Although spiritualists generally privileged the expertise of experienced enquirers over trained scientists in the apprehension of spiritual truths, some recognised the great value that professional scientific methods and knowledge could have in raising spiritualism's public profile as a credible scientific enterprise. The evidence of Crookes, Wallace, Zöllner and others for psychic force, materialised spirits, slate-writing and survival may not have revealed anything that spiritualists did not know already, but it was seen to have great value in attracting audiences far beyond the circles of believers and undecided enquirers. Many spiritualists maintained that they could progress their "science" without the help of men of science, but some agreed with Charles Carleton Massey, who, in 1876, suggested to *Spiritualist* readers that the task of disseminating spiritualism was better in the hands of scientists than newspaper editors and what the *Spiritualist* called the "highly cultured section of society": "[w]e want their names", Massey urged, "and we want their brains".[49]

Late-nineteenth- and early-twentieth-century spiritualist, Theosophical and occult texts amply testify to the extent to which the names and brains of scientific men were exploited for psychical purposes. The authors of these texts had no problems deferring to the expertise of physicists when their 'physical' researches revealed phenomena that seemed to confirm spiritualistic, Theosophical and occult teachings.[50] Few scientific announcements prompted more excitement in this literature than the discovery of X-rays. As a form of invisible radiation that could penetrate solid bodies and be detected photographically, X-rays were often debated as the physical basis of clairvoyance, telepathy, spirit photographs and the mesmeric influence.[51] The discovery of radium emanations and the invention of electric and etherial theories of matter proved equally welcome to spiritualists, Theosophists and occultists in the long term because they challenged

[49] Charles Carleton Massey, 'Spiritualism and Men of Science', *Spiritualist*, vol. 9 (1876), pp. 21–2, p. 22; [Anon.], 'Spiritual Phenomena and Men of Science', *Spiritualist*, vol. 9 (1876), p. 1. Massey's view was shared by the American spiritualist Epes Sargent: Sargent, *Scientific Basis of Spiritualism, passim*.

[50] For example, [Anon.], 'The Unseen Universe. Mr Crookes FRS, on Materialism', *Light*, vol. 7 (1887), pp. 146–7; Annie Besant and Charles Leadbeater, *Occult Chemistry: Clairvoyant Observations on the Chemical Elements*, ed. by A. P. Sinnett (London: Theosophical Publishing House, 1919).

[51] [Anon.], 'The New Light', *Light*, vol. 16 (1896), pp. 102–3; [Anon.], 'Psychic Photography', *Borderland*, vol. 3 (1896), pp. 313–21; J. W. Sharpe, 'Photographing the Unseen', *Light*, vol. 21 (1901), pp. 429–30.

long-held ideas about matter that were the foundations of a materialistic world view to which occultisms had long been opposed. Thus, in 1905, the Theosophist Fio Hara delighted in the way that these developments had forced "Modern Science" to abandon the idea of the "existence of real material particles" and to accept the existence of the less material "real Ultimates of Force and Matter" that had "ever been part of the teaching of the students in the Secret Schools".[52] Similarly, for the spiritualist weekly *Light*, J. J. Thomson's 1909 remarks on the electrical theory of matter, which attributed inertial mass to electrical charge, and electrical charge to forces in an immaterial ether, showed science "pursuing a path which runs parallel with that of the Spiritualist who postulates that all force is in its ultimate nature spiritual, whether it resides latent in the ether or is manifested to the senses as matter".[53]

Tricky Instruments of Psychics

In a vitriolic pamphlet of 1872, Edward Cox, the British lawyer, psychological writer and spiritualist enquirer, prophesied that "[t]ouched by Science", the "speculations of Spiritualism" will "vanish, and the facts that lie at the bottom of it will become a solid and invaluable addition to our knowledge of the physiology and psychology of Man".[54] Of all these potential "facts", few excited Cox more than his theory of psychic force, for which Crookes's experiments with Home seemed to furnish weighty evidence. By the mid-1870s, Cox believed that this theory of a power flowing from the human body explained how objects in spiritualist seances moved without material contact and how the soul or 'psyche' interacted with the material body. The accumulation of evidence for psychic force, via observations and measurements undertaken in a "variety of conditions", was one of many ways in which Cox believed his "branch of the science of Psychology can be advanced".[55]

As Graham Richards has shown, Cox's vision for psychic force, which would soon inspire him to found the short-lived Psychological Society of Great Britain, provides an illuminating insight into the extent to which late-nineteenth-century individuals fought over the definition of the subject matter for the fledgling science of psychology.[56] Cox's psychological

[52] Fio Hara, 'The Advance of Science Towards Occult Teachings', *Theosophical Review*, vol. 37 (1905–6), pp. 548–54, p. 551.
[53] [Anon.], 'Wider Outlooks of Science', *Light*, vol. 29 (1909), p. 427.
[54] Edward W. Cox, *Spiritualism Answered by Science: With the Proofs of a Psychic Force* (London: Longman and Co., 2nd ed., 1872), p. 47.
[55] Cox, *Spiritualism*, p. 67.
[56] Richards, 'Edward Cox'. My discussion is indebted to Richards's analysis.

enterprise is a neglected aspect of the wider transitions in psychology during the last third of the nineteenth century from an empirical to an experimental activity, the more durable manifestations of which included physiological psychology and psycho-physics. In Cox's case, psychology was a science that needed to focus on phenomena such as psychic force, which, seemingly no less tangible than electricity and magnetism and therefore no less susceptible to observation and measurement, would enable psychology to ape the experimental protocols of established sciences.

Cox also defined his science of psychology in opposition to competing psychologies of the mid-nineteenth century. He opposed spiritualists' approach to psychology because it attributed to disembodied spirits phenomena that he believed could be more credibly ascribed to immaterial powers of the living, notably what he christened 'psychic force'. However, his psychology overlapped strongly with the spiritualist variety insofar as it was preoccupied with the phenomena of mediumship and was defined in opposition to an older 'psychology' represented by theological dogma about the soul and to the newer physiological form of psychology that threatened to reduce mind to the molecular constituents of the brain. As something acting well beyond the body, psychic force well served Cox's push for an anti-materialist but non-spiritualist psychology.

Cox's pamphlet of 1872 was principally a defence of the evidence of psychic force against one of the fiercest attacks that he, Crookes, Varley and other scientific investigators of spiritualism would ever suffer. Published in the October 1871 number of a venerable forum of intellectual debate, the *Quarterly Review*, this anonymous diatribe was soon revealed to be the work of William Benjamin Carpenter, the major British architect of the physiological approach to psychology that Cox closely associated with materialism.[57] Cox was furious that Carpenter sought to displace the psychic force theory with a related one about unconscious psychological powers that he judged to be no more scientifically credible. This was Carpenter's theory of 'unconscious cerebration' or 'ideo-motor' action, which he had been using to explain mesmerism, Reichenbach's od, table-turning, spirit-rapping and related phenomena since the 1850s. Individuals who appeared to display an ability to read the thoughts of others, to commune with spirits of the dead, to perceive magnetic luminosity, and to channel forces that turned tables and rapped messages were likely to have been victims of their unconscious mental mechanisms. These mechanisms brought into an individual's

[57] [William B. Carpenter], 'Spiritualism and its Recent Converts', *Quarterly Review*, vol. 131 (1871), pp. 301–53; Cox, *Spiritualism*, p. 77.

consciousness knowledge that they convinced themselves they had forgotten or not known (the basis upon which arguments for thought-reading, od sensitivity and spirit communion were made), compelled them to unconsciously exert mechanical forces ascribed to other agents, and to generally weaken their judgement.

The solution to these now "Epidemic Delusions" lay in educating the mind and in deferring to the authority of those who best understood mental mechanisms.[58] In representing spiritualism as an epidemic originating in well-known mental and bodily processes, Carpenter spoke for many medical practitioners, physiologists and psychologists trying to raise the social, moral and cultural value of their forms of expertise.[59]

What especially exasperated Cox was that he was one of those whose authority Carpenter tried to demolish, a strategy prompting Cox's own attempt to undermine Carpenter's arguments, based as they seemed to be on misrepresentations and slander. For Carpenter, there were two main reasons why Crookes, Varley and other recent investigators of spiritualism lacked scientific authority on the subject. First, they had shown no deference to "scientific men" such as himself and other physiological psychologists whose claims to authority rested on much greater experience in "inquiries of the like kind".[60] Second and more significantly, they were, like so many spiritualistic enquirers without a thorough scientific education, the victims of an undisciplined mental apparatus. The scientific training that Crookes, Huggins, Lindsay and Varley boasted had only given them highly specialist and merely "technical" forms of scientific expertise that were useless in enquiries demanding a far wider range of scientific abilities. They exemplified the warning he had directed at the general public and to those who shaped its judgement that "a man may have acquired a high reputation as an investigator in one department of science, and yet be utterly untrustworthy in regard to another".[61] The perils of disregarding this warning were especially acute when a scientific practitioner renowned for his abilities in physical investigation turned to an inquiry that was "psychical rather than physical, and involves a knowledge of the modes in which the Mind of the observer is liable to be misled either by his own proclivities or by the arts of an intentional deceiver".[62] Had Crookes and others deferred more to the likes of Carpenter, they would have been better prepared for self-deception and Home's trickery.

[58] Carpenter, 'Spiritualism', p. 351.
[59] Shortt, 'Physicians and Psychics'.
[60] Carpenter, 'Spiritualism', p. 328.
[61] Carpenter, 'Spiritualism', p. 340.
[62] Carpenter, 'Spiritualism', p. 340.

The limited scientific education of physical scientists was woefully demonstrated in their careless approaches to the human and mechanical instruments at the heart of their spiritualistic investigations. The astronomer Lord Lindsay's evidence of Home's ability to perceive magnetic luminosity suggested someone who placed the "same reliance on Mr. Home's statements that he would in the indications of a well-constructed thermometer" instead of testing the value of Home's utterances "as the maker of a thermometer does the correctness of its graduation".[63] Crookes had seriously blundered in his experiments on psychic force because he had calibrated neither his human nor mechanical instruments, seemingly because his judgement had been impaired by an "*avowed foregone conclusion*" that certain spiritualistic phenomena were genuine: he had signally failed to measure the mechanical force that Home could exert on the wooden board before psychic force welled up in the medium, and how much the effects of psychic force could be produced by the non-psychic means of rhythmical vibration.[64]

This was neither the first nor the last time that Carpenter inveighed against physical scientists' forays into his territory. In articles, public lectures, debates at scientific societies and in private correspondence throughout the 1870s he attacked them for failing to heed the warnings of physiologists, psychologists, medical practitioners and others whose particular experiences and training and their general scientific culture earned them, as he warned Barrett privately in 1876, "the rights to be considered as experts" in spiritualism and mesmerism.[65] Although he denied ruling out the possibility of thought-reading, he was incensed that in Barrett's controversial paper at the 1876 meeting of the British Association, the physicist had effectively privileged his own positive trials of the alleged mental faculty over a far larger body of inconclusive or negative evidence by people who better understood the hidden powers of the mind and body. Furthermore, Barrett did not appear to have prevented his young female subjects from exploiting subtle yet handy "unconscious revelations" that he may have conveyed in tone, gesture or facial expression, and seems to have joined the ignominious company of Reichenbach, Gregory, Crookes and other physicists who put "as much faith in tricky girls or women, as they do in thermometers or electroscopes".[66] Carpenter's gendered contrast between unreliable

[63] Carpenter, 'Spiritualism', pp. 335–6. [64] Carpenter, 'Spiritualism', p. 343.
[65] William B. Carpenter to William F. Barrett, 2 November 1876, SPR.MS 3/A4/13, WFB-SPR.
[66] William B. Carpenter quoted in [Anon.], 'The British Association at Glasgow', *Spiritualism*, vol. 9 (1876), pp. 88–94, p. 90; William B. Carpenter, 'Spiritualism', *Spectator*, vol. 49 (1876), pp. 1281–2, p. 1282.

humans and reliable scientific instruments reflected nineteenth-century medical and scientific understandings of sexual difference. By representing women's bodies and minds as less stable than those of men, the male-dominated medical and scientific professions sought to give natural explanations of and justifications for the inequalities of gender.[67]

Carpenter's preoccupation with physicists' handling of tricky humans and physical instruments took an intriguing turn in the form of a provocative intervention in the controversy over Crookes's radiometer.[68] By early 1876, and partly in response to criticism and encouragement from fellow physicists, Crookes and Gimingham had constructed a series of new instruments exploring the possibility that the residual gas in the radiometer bulb played a much more significant role in moving the vanes than Crookes had previously assumed. Their apparatus showed the presence of a 'molecular wind' accompanying the spinning vanes even at pressures so low that the residual gas resisted a powerful electrical spark and so low that, contrary to Crookes's earlier conclusion that the radiation force intensified with rarefaction, the force actually weakened. This supported Crookes's revised conclusion that the radiometer motion was due to a thermometric action between the vanes and bulb mediated by the residual gas.[69] But many with the means to make or purchase a radiometer were not convinced by Crookes's theory. Fuelling debates over the cause of the rotation were the bewildering number of factors affecting the instrument's behaviour, including the size of the bulb, the type of radiation employed and the shape of the vanes.[70]

For Carpenter, the prominence of the radiometer in scientific discourses was a perfect opportunity to renew his attack on Crookes, who, having given his scientific blessing to Annie Eva Fay and other mediums for whose trickery Carpenter claimed there was strong evidence,

[67] On the gender ideologies in Victorian medical and scientific studies of sexuality see Cynthia Russett, *Sexual Science: The Victorian Construction of Womanhood* (Cambridge, MA: Harvard University Press, 1989), esp. chapter 4; Ornella Moscucci, *The Science of Woman: Gynaecology and Gender in England, 1800–1929* (Cambridge University Press, 1990); Mary Poovey, *Uneven Developments: The Ideological Work of Gender in Mid-Victorian England* (Chicago University Press, 1988); Elaine Showalter, *The Female Malady: Women, Madness and English Culture, 1830–1980* (London: Virago, 1985), chapter 5.

[68] Brock, *William Crookes*, chapters 9 and 12; Robert K. DeKosky, 'William Crookes and the Fourth State of Matter', *Isis*, vol. 67 (1976), pp. 36–60.

[69] William Crookes, 'On Repulsion Resulting from Radiation. Influence of the Residual Gas', *Proceedings of the Royal Society of London*, vol. 25 (1876–7), pp. 136–40.

[70] These debates took place in leading scientific periodicals of the period during 1875–7. Typical interventions in these debates are 'Treadle', 'Radiometers', *English Mechanic and World of Science*, vol. 22 (1876), p. 558; T. N. Hutchinson, 'Radiometers and Radiometers', *Nature*, vol. 13 (1875–6), p. 324; George Johnstone Stoney, 'On Crookes's Radiometer', *Philosophical Magazine*, vol. 1 (5th Series) (1876), pp. 177–81.

threatened to fuel the spiritualistic epidemic.[71] Carpenter's strategy, published in another high-profile journal of intellectual debate, the *Nineteenth Century*, was to contrast the trajectories of Crookes's radiometer and spiritualistic investigations. Both began with the experimenter committed to mistaken ideas about new forces, namely the direct mechanical action of light and psychic force. But the experimental programmes then took very different courses. In the radiometer work, Crookes had "evinced the spirit of the true philosopher" by thoroughly testing and then abandoning his original interpretation and building an apparatus establishing the effect of residual gases.[72] This effect not only harmonised with mechanical laws held by all physicists but could be verified by "every one who could construct the apparatus".[73] In his psychic force work, however, Crookes had hardly evinced the same spirit because his strong commitment to spiritualistic ideas led him to rest the case for psychic force on dubious testimony and poorly designed, unrepeatable experiments. The true lessons of the radiometer concerned Crookes's psychology as much as the peculiar nature of radiation transfer in rarefied gases, because it indirectly showed how even an expert mind could have unscientific and scientific sides, and the corresponding need for "training and disciplining of the *whole* mind" and of "cultivating scientific habits of thought" in "*every* subject".[74]

The physiological approach to psychology that Carpenter had been spearheading, as well as its associated theories of automatic mental activity, achieved limited success in Britain, not least because experimental physiology was simply not as well established there as it was in other countries and for this reason it was more difficult to extend its methods to psychology.[75] Physiology enjoyed far greater institutional strength in Germany, and it was here that physiological psychology flourished in the hands of Wilhelm Wundt and others.[76] Wundt shared many of Carpenter's positions on

[71] Carpenter was delighted to use Home's *Lights and Shadows of Modern Spiritualism*, which included damning evidence against fellow mediums: William B. Carpenter, 'Psychological Curiosities of Spiritualism', *Frasers's Magazine*, vol. 16 (1877), pp. 541–64. Home's book caused Crookes embarrassment because it publicised the damning evidence against Mary Rosina Showers, the medium whom he had tested in 1874 and who had privately confessed her trickery in 1875: see Medhurst and Goldney, 'William Crookes', pp. 121–2.

[72] William B. Carpenter, 'The Radiometer and Its Lessons', *Nineteenth Century*, vol. 1 (1877), pp. 242–56, p. 254.

[73] Carpenter, 'Radiometer and Its Lessons', p. 254.

[74] Carpenter, 'Radiometer and Its Lessons', p. 256.

[75] Danziger, 'Mid-Century British Psycho-Physiology'.

[76] On Wundt see W. G. Bringmann and R. D. Tweney (eds.), *Wundt Studies* (Toronto: C. J. Hogrefe, 1980); Kurt Danziger, *Constructing the Subject: Historical Origins of Psychological Research* (Cambridge University Press, 1990), chapters 2–3.

spiritualism and psychology.[77] He lambasted spiritualism as a form of superstition and upheld the dignity of the conscious rational will over other mental processes. More tellingly, in his notorious critique of the spiritualistic investigations of the Leipzig astrophysicist Johann K. F. Zöllner, he questioned the ability of somebody with authority in "some particular science" to "transfer this quality at his pleasure to other provinces", especially when these latter provinces related to phenomena threatening scientifically established laws.[78] In 1877, Zöllner had convened seances in Leipzig with the American medium 'Dr' Henry Slade, who had recently fled from Britain following a failed prosecution, led by the British anatomist E. Ray Lankester, for fraudulently producing 'spirit' writing within enclosed slates. Zöllner was vastly more impressed with Slade's performances than the medium's British assailants. For him, Slade's abilities to produce slate-writing, tie knots in continuous loops of fabric and interlink two continuous wooden rings could not be put down to self-delusion or trickery: they suggested the medium's genuine ability to access spirits in a fourth dimension from where these seemingly impossible physical feats could be achieved.[79]

Zöllner's investigations prompted a mixed reaction, the most hostile being from academic psychologists and physiologists. Having attended a single seance with Slade, Wundt strongly suspected that Zöllner had been the victim of "jugglery" and that the large amount of control wielded by the medium over seance conditions demonstrated that it was he who had "made the experiments" on his hapless scientific sitter, rather than vice versa.[80] Echoing Carpenter's attack on scientists' failures to calibrate their mediumistic apparatus, Wundt compared the scientist in the Slade seances to an astronomer who "can not freely manage his senses and his instruments".[81]

A key difference between Wundt and Carpenter was that the German psychologist was much more willing to defer to the authority of conjurors in seances.[82] This was precisely the position of many of the leading American architects of the academic discipline of psychology, some of

[77] Sommer, 'Crossing the Boundaries', chapter 4; Wolffram, *Stepchildren of Science*, pp. 37–43.

[78] Wilhelm Wundt, 'Spiritualism as a Scientific Question', *Popular Science Monthly*, vol. 15 (1879), pp. 577–93, p. 580.

[79] Zöllner, *Transcendental Physics*. For analysis see Sawicki, *Leben mit dem Toten*, pp. 300–10; Sommer, 'Crossing the Boundaries', pp. 214–28; Staubermann, 'Tying the Knot'.

[80] Wundt, 'Spiritualism', pp. 584 and 586. [81] Wundt, 'Spiritualism', p. 583.

[82] While he relished the fact that some conjurors could replicate many feats performed by mediums, Carpenter maintained that medical practitioners and psychologists were the supreme scientific experts on psychical matters: Carpenter, 'Psychological Curiosities', p. 553.

whom had studied under Wundt. From the 1880s onwards, G. Stanley Hall, Hugo Münsterberg, Joseph Jastrow and others launched fierce public attacks on mesmerism, spiritualism and psychical research as part of a struggle to claim sovereignty over the science of psychology.[83] One of their major anxieties was the widespread belief that psychical research was a scientifically credible form of psychology, a belief reinforced by the fact that it was closely associated with such individuals as Crookes, Lodge, Richet and, crucially, the Harvard psychologist and philosopher William James. The psychical interests of James, another leading architect of the academic discipline of psychology, exemplified the problematic status of psychical research in the invention of this field per se.[84] On the one hand, academic psychology needed to distinguish itself from what it perceived to be psychical research's serious methodological flaws; on the other hand, it could not simply sidestep the questions pursued by psychical research because these were the ones that fascinated the publics before whom academic psychology needed to demonstrate its authority.

American academic psychologists' complex relationship with psychical research was reflected in their uncertainty about what defined expertise in the subject. As Deborah Coon has argued, they "wanted the authority to dictate" who could study psychical phenomena, even if they did not think all psychologists were qualified to do so.[85] This well characterises Münsterberg, who, in 1899, sought to police theorising on telepathy, apparitions and other psychical phenomena but revealed that he had not attended telepathy trials or seances because his scientific training had "spoiled" him for a task that was better suited to a prestidigitator or a detective.[86] Despite his experiences in psychological research, he still felt closer to the likes of Zöllner, Richet and Crookes, whose laboratory routines had given them a "continuous training of an instinctive confidence in the honesty of their co-operators" which was fatal when applied to human subjects.[87] Those scientists who relied heavily on "physical instruments" were among the least reliable because, as he warned in a Carpenteresque way in 1910, this "shifted the attention away from the woman and her inexhaustible supply of tricks".[88]

[83] Coon, 'Testing the Limits'.
[84] On James and psychical research see Sommer, 'Psychical Research'; Taylor, *William James*, chapter 4.
[85] Coon, 'Testing the Limits', p. 148.
[86] Hugo Münsterberg, 'Psychology and Mysticism', *Atlantic Monthly*, vol. 83 (1899), pp. 67–85, p. 78.
[87] Münsterberg, 'Psychology and Mysticism', p. 78.
[88] Hugo Münsterberg, *American Problems: From the Point of View of a Psychologist* (New York: Moffat, Yard and Company, 1910), p. 141.

Physical–psychical scientists seem to have paid less attention to such general scientific critiques of their claimed authority in spiritualism than to those, like Carpenter's, where doubts about their authority were linked to charges against specific claims. One such latter-day critic whom they did take seriously was the British physiologist Ivor Tuckett. Between 1911 and 1913, he published blistering attacks on Barrett, Lodge and other leading SPR researchers for making woefully inadequate claims about telepathy, survival and the physical phenomena of spiritualism. His close analysis of the SPR's reports on Leonora Piper, published from the late 1880s onwards, persuaded him that the powers of telepathy and communion with the dead that many SPR members claimed for her were probably due to a combination of chance, and of skill in using information accessible by normal means. Lodge's report on her mediumship was particularly weak because it clearly did not allow for the possibility that Piper's allegedly "supernormal" knowledge of his deceased relatives was acquired by fishing for information, exploiting clues in his utterances and other surreptitious uses of normal powers.[89]

Equally troublesome for Lodge, Barrett and others was Tuckett's emphasis on the trickery to which they knew some key psychic subjects had at some stage resorted, including Palladino and the Creery sisters, whose extraordinary performances in thought-reading had galvanised Barrett's final push for a psychical research organisation in 1881.[90] These revelations gave weight to Tuckett's argument that Lodge, Richet and other investigators of Palladino had shown a "chivalrous faith" in her genuineness and accepted her conditions "in the most docile manner", thereby allowing themselves to become victims of self-deception and fraud, an allegation that had already been the subject of popular speculation and derision (Figure 5.1).[91] Unsurprisingly, the Creery case gave Tuckett another reason to echo Carpenter's serious misgivings about physicists' experimental protocols. The physiologist had no doubt that had they been "trained in experimental psychology" physicists would never have allowed a strong "*will to believe*" in the reality of psychical effects to turn them into the instruments and victims of a mediumistic experiment.[92]

[89] Ivor Tuckett, *The Evidence for the Supernatural: A Critical Study made with 'Uncommon Sense'* (London: Kegan Paul, Trench, Trübner & Co., 1911), pp. 335. 'Supernormal' was Myers's term for human faculties or phenomena that transcended ordinary experience but could not be assumed to be 'supernatural': Myers, *Human Personality*, vol. 1, p. xxii.

[90] Tuckett, 'Psychical Researchers'. Barrett never doubted the robustness of his evidence for the Creery sisters. Oppenheim's argument (in Oppenheim, *Other World*, p. 360) that in this case Barrett had lost his "critical stance of the neutral scientist" overlooks the fact that Barrett's belief related to his *early* tests, not the later ones where he accepted that cheating had occurred.

[91] Tuckett, 'Psychical Researchers', p. 186.

[92] Tuckett, 'Psychical Researchers', p. 204.

5.1 In November 1909, shortly after Eusapia Palladino arrived in New York for tests with American psychical researchers, the *New York American* poked fun at Lodge's earlier investigations of her. Hoodwinked by 'Madame Fakerino', the 'Royal Professor of Occult Science' is reprimanded by his royal patron and ridiculed in the press. From F[rederick] Opper, 'The Kink of Denmark', *New York American*, 26 November 1909. Reproduced by permission of Ohio State University.

Tricky Instruments of Physics

In his response to Tuckett, Lodge resorted to a strategy used by many in controversies over spiritualism and psychical research who found their authority challenged: question the adversary's authority. Just as he hoped Tuckett would, after becoming "better informed", join the "small group of painstaking and critical explorers in this obscure region", so in 1871 Crookes doubted whether Carpenter's knowledge of this region was as exhaustive as he claimed, not least that relating to the movement of bodies without contact, where his cherished theory of unconscious cerebration seemed to break down.[93] Barrett and Stewart expressed similar intellectual and moral concerns about Carpenter's claims to authority. Carpenter was clearly one of the targets when, in 1877, Barrett warned of the "flimsy explanations, varnished with half-truths, that pass muster at the hands of those psychologists who arrogate to themselves the sole right of instructing the public on this subject" and when, in framing his own positive evidence for thought-reading five years later, Stewart criticised "certain physiologists" for following the poor methodological principle of distrusting evidence that might force an amendment to or extension of an existing scientific generalisation or law.[94]

In these kinds of responses to criticism, physical–psychical scientists claimed to be experts in psychical matters solely on the basis of greater experience of investigating psychical phenomena. Crucially, they believed this experience gave them skills in safeguarding themselves against the trickery of human subjects – skills that a background in the physical sciences alone did not furnish. They would certainly have agreed with the German–English philosopher and SPR member Ferdinand C. S. Schiller, who, responding to Münsterberg's attack on the "competence" of scientists in psychical research, pointed out that while such individuals were not "born experts in psychical research" they became so by a "pretty severe training, in the course of which they may often fall into error" but which eventually gave them an "instinctive insight into the possibilities of fraud".[95] As we saw earlier, one obvious aspect of this expertise that

[93] Oliver Lodge, '"Uncommon Sense" as a Substitute for Investigation', *Bedrock*, vol. 1 (1912–13), pp. 333–50, p. 335; Crookes, *Psychic Force*, p. 6. Lodge's warning echoed what he said during the controversy over another 'obscure region' – cathode rays – years earlier. Defending the particle theory of the rays over the rival electromagnetic wave theory, he argued that the "theoretical views" of an experimenter who "lives among phenomena is to be listened to" even if they disagree with our "well-based prepossessions": Oliver Lodge, 'On the Rays of Lenard and Röntgen', *Electrician*, vol. 36 (1896), pp. 438–40, p. 439.

[94] Barrett, 'Demons of Derrygonelly', p. 700n; Balfour Stewart, 'Note on Thought-Reading', *PSPR*, vol. 1 (1882–3), pp. 35–42, p. 36.

[95] Ferdinand C. S. Schiller, 'Psychology and Psychical Research', *PSPR*, vol. 14 (1898–9), pp. 348–65, p. 359.

physical scientists did not possess by reason of their training related to the psychological conditions of experiment. Barrett was acutely aware of this problem. In his presidential address to the SPR in 1904, he maintained that these conditions, and the difficulty of achieving them, led to the notorious replication problems in psychical experiment that so antagonised sceptics. What these sceptics seemed to forget was the "profound difference" between physical and psychical experiment, which was that success in psychical experiment depended on conditions, many of which were unknown, and some of which related to the mental state of participants.[96] However, Barrett had earlier insisted that even the mental "sympathy" that a psychical researcher needed to show towards their experimental subjects could be justified in terms of a comparable approach in the physical sciences: it was "compatible with a calm judgement and clear and accurate observation" that he and so many other academic physicists promoted in their teaching.[97]

The parallel that Barrett drew between expertise in psychical and physical experimentation was weak compared to those that he and other physical–psychical scientists drew on other occasions. These stronger parallels were underpinned by a genuine belief that experimental physics offered salutary lessons for psychical investigation, and engendered a degree of tolerance towards tricky human subjects whose patient study promised to be scientifically fruitful. A key rhetorical strategy that many physical–psychical scientists adopted was to challenge the sharp distinction between physical and human instruments made by many psychological critics. What the latter deemed to be the vices of only having experience using physical instruments were turned into virtues. The physical–psychical scientists who did this were painfully aware that in physical research instruments often behaved unpredictably, effects were difficult to see or control, and progress was often hampered by complex environmental conditions. These made it more difficult to achieve the widely shared expectation that sources of error had been identified, measured, eliminated or managed.[98]

A subtle instance of tricky instruments of physics being given psychical significance occurred in 1877 when Crookes was responding to Carpenter's invidious comparisons between his radiometer and spiritualistic researches. Unsurprisingly, the chemist and physicist denied the physiologist authority on the physical problem of the radiometer and rejected Carpenter's charge that his mind had been scientific in one

[96] Barrett, 'Address by the President', p. 331.
[97] Barrett, 'On Some Physical Phenomena', p. 41.
[98] On this expectation see Gooday, 'Instrumentation and Interpretation', esp. 413–20.

case but not the other. Crookes clearly believed that the experimental virtues that led to success with the radiometer had been present in his spiritualistic researches. A key lesson that he drew from the radiometer controversy was the importance of following "residual", unanticipated or slightly anomalous effects, even when such effects were hard to reproduce or challenged what Carpenter upheld as the "'common sense of educated mankind'".[99] It was precisely the "man of disciplined mind and of finished manipulative skills" rather than the "untrained physicist or chemist" who was best able to cope with these kinds of experimental and theoretical difficulty, and could proceed to make important discoveries.[100]

Although this lesson seemed only to be relevant to residual phenomena in the physical sciences, Crookes had long believed that it had a far wider significance. Those with technical and specialist scientific skills could also be trusted to tease out 'residual' truths about spiritualism and, engaging with the same debates on scientific and technical education that had long preoccupied Carpenter, they were precisely the individuals that had helped give Britain its industrial strength.[101] The psychical lessons of the radiometer were certainly not lost on Lodge and Stone, who agreed that it showed the virtues of persevering with recalcitrant and potentially deceptive effects that were contemptuously rejected by representatives of common sense.[102]

A more explicit attempt to make a virtue of experiences with physical instruments appeared in Barrett's address to the London Spiritualist Alliance in 1894. Engaging with spiritualists' anxieties about the kinds of aggressive scientific investigator that James Burns had expressed nearly 20 years earlier, he tried to reassure his audience that physicists understood better than most kinds of scientific practitioner how their very presence in sites of enquiry could adversely affect experimental outcomes and why, *pace* Münsterberg, intrusive methods of investigation were counter-productive. "In every physical process we have to guard against disturbing causes", he explained, but if, for example,

> Professor S. P. Langley, of Washington, in the delicate experiments he is now conducting – exploring the ultra red radiation of the sun – had allowed the thermal radiation of himself or his assistants to fall on his sensitive thermoscope, his results would have been confused and unintelligible. We know that similar confused results are obtained in psychical research, especially by those who fancy the sole function of a scientific investigator is to play the part of an amateur detective; and accordingly what they detect is merely their own incompetency to deal with

[99] Crookes, 'Another Lesson', pp. 886–7. [100] Crookes, 'Another Lesson', p. 886.
[101] Crookes, *Psychic Force*, p. 13.
[102] Oliver Lodge, 'Correspondence', *JSPR*, vol. 6 (1893–4), pp. 270–2; William H. Stone, 'The Radiometer', *Popular Science Review*, vol. 17 (1878), pp. 164–81, esp. pp. 180–1.

problems the very elements of which they do not understand and seem incapable of learning.[103]

For some of Barrett's auditors, his argument would have carried much authority given his well-known lectures on the extraordinary sensitivity of flames, Thomas Alva Edison's heat detector and on other instruments that picked up obscure vibrations emitted by the body.[104]

Lodge agreed with Barrett that a more sympathetic treatment of mediums found some justification in the way physicists coped with instruments. Only a month after Barrett's address, he presented his formal report on the Palladino investigations to the SPR, part of which dealt with the question of her potential fraudulence. He judged it "scientific" to accept the possibility that she was capable of conscious and unconscious trickery: even though he was confident that participants held her hands and feet firmly throughout the seances, he acknowledged that some "occurrences" (especially those very near the medium) might seem like the result of her surreptitiously freeing a hand or foot.[105] But he also deprecated the "hasty and ill-founded accusation" of deliberate imposture because it often reflected a poor understanding of Palladino's performance, including the fact that when entranced she was not conscious of her actions.[106] Such interpretations were perilous in psychical *and* physical research. Doubtless drawing on material he used in lectures to his students at Liverpool, he encouraged fellow psychical researchers to treat Palladino

> not as a scientific person engaged in a demonstration, but as a delicate piece of apparatus wherewith they are making an investigation. She is an instrument whose ways and idiosyncrasies must be learnt, and to a certain extent humoured, just as one studies and humours the ways of some much less delicate piece of apparatus turned out by a skilled instrument-maker. A bad joint in a galvanometer circuit may cause irregular and capricious and deceptive effects, yet no one would accuse the instrument of cheating. So also with Eusapia: it is obviously right to study the phenomena she exhibits in their entirety, so far as can be done with such a complicated mechanism, but charges of fraud should not be lightly and irresponsibly made.[107]

[103] Barrett, 'Science and Spiritualism', p. 585.
[104] William F. Barrett, 'Sensitive Flames as Illustrative of Sympathetic Vibration', in *Science Lectures at South Kensington*, 2 vols. (London: Macmillan and Co., 1879), vol. 2, pp. 183–200; William F. Barrett, 'Mr. Edison's Inventions', *Electrician*, vol. 2 (1878–9), pp. 76–7.
[105] Lodge, 'Experience of Unusual Physical Phenomena', pp. 321 and 325. See also Richard Hodgson, 'The Value of Evidence for Supernormal Phenomena in the Case of Eusapia Palladino', *JSPR*, vol. 7 (1895–6), pp. 36–55, p. 39.
[106] Lodge, 'Experience of Unusual Physical Phenomena', p. 325.
[107] Lodge, 'Experience of Unusual Physical Phenomena', p. 324.

Lodge's suggestion that Palladino more resembled an instrument that unconsciously mediated effects than a person who consciously 'demonstrated' or fabricated them would not have convinced those who suspected that she had more control over these effects than she claimed, and who therefore did not deserve to be humoured. But it was welcomed by Barrett and would have carried weight with those of Lodge's auditors who were aware that, in his recent researches on electromagnetic waves, he seemed to have demonstrated the virtues of this approach to instruments.[108] His development of a form of 'coherer' detector of these waves arose from carefully studying the capricious effect of bad electrical contacts, which an impatient physicist might have dismissed as an inherently deceptive feature of the apparatus. Lodge hinted at this methodological lesson in an 1894 lecture where he modestly suggested that "[p]erhaps some of the capriciousness of an anathematised bad contact was sometimes due to the fact that it was responding to stray electric radiation".[109] Similar to Crookes's view on residual effects, Lodge clearly believed that a patient study of mediums might trace capricious behaviour to genuinely novel psychological or physiological causes, whereas a hasty investigation would simply dismss the behaviour as conscious trickery.[110]

Lodge's rejection of a rigid distinction between physical and psychic instruments was shared by another physicist who investigated Palladino: J. J. Thomson. He had participated in the tests of her mediumship that Lodge, Rayleigh, Myers, the Sidgwicks and other SPR members had staged in Cambridge during July and August of 1895. He later recalled that the handful of sittings he had with her were "exciting and interesting" but on balance unconvincing.[111] On the one hand, he could not explain how heavy curtains had billowed out behind her, despite there being no draught and no evidence of a mechanism by which this could have been done. On the other hand, he was satisfied that the medium had cheated in a way that would become one aspect of Hodgson's sensational exposé of Palladino as a skilled fraudster. By insisting that the two people either side of her at the seance table – Thomson and Rayleigh – lightly touched rather than firmly held her hands, he argued that she probably wriggled her hands so that one of Thomson's hands ended up on one of Rayleigh's. This fooled the scientists

[108] Barrett, *Threshold of a New World of Thought*, p. 49.
[109] Lodge, 'Work of Hertz', p. 343.
[110] On Lodge's defence of patience as a scientific virtue see Michael Whitworth, 'Transformations of Knowledge in Oliver Lodge's *Ether and Reality*', in Navarro, *Ether and Modernity*, pp. 30–44.
[111] Thomson, *Recollections and Reflections*, p. 148. Thomson's participation in these seances is documented in notes taken by Eleanor Sidgwick's assistant Alice Johnson: Notes on Eusapia Palladino seances, SPR.MS 44/1/1/1, Society for Psychical Research Archive, Cambridge University Library.

into thinking contact had not been broken and allowed her to fraudulently produce "very lively" movements of furniture and other effects.[112]

Thomson's opinion of Palladino, however, was not as unfavourable as this might suggest. In his 1936 autobiography, he clearly felt that it was time to express a more equivocal view about her than he had felt acceptable in the late 1890s when the SPR officially agreed to dissociate itself from the 'tainted' medium. The grounds for his equivocation lay in considerations of psychical *and* physical research. He accepted that Lodge's evidence for the genuineness of some of Palladino's earlier telekinetic performances (revealed in *his* autobiography of 1931) arose from seances held under better conditions – where the medium had been more at ease with her sitters and less inclined to cheat.[113] But Thomson also revealed an attitude towards her erratic performances that derived from his experiences using tricky instruments of physics. It was no coincidence that in the midst of reflecting on Palladino he recalled a humorous observation made by one of his Cambridge colleagues, the physicist Coutts Trotter, in the 1890s: "the law of constancy of Nature was never learned in a physical laboratory".[114] Trotter's quip seemed especially appropriate to Thomson, whose research students often joked about his frustration with wayward instruments and who, in the 1890s, was often hindered by the capricious effects of apparatus built to probe the mechanisms by which electricity discharged through gases.[115] Thomson's experiences in the physical laboratory seem to have made him tolerant of Palladino's caprices. Given that a complex physical apparatus was "simplicity itself compared with a human being", it was even more presumptuous to expect a medium to produce consistent effects, especially in surroundings made unsettling by the presence of physical instruments.[116] Indeed, for Thomson, experimental physics was more important for engendering a tolerance of mediumistic performance than in providing the instrumental testing strategies discussed in Chapter 4.

The appeal to the tricky instruments of physics was mobilised by physical–psychical scientists to justify a patient approach to puzzling and capricious effects, and to defend themselves against accusations that their observational powers could not cope with the specific

[112] Thomson, *Recollections and Reflections*, p. 150.
[113] Thomson, *Recollections and Reflections*, p. 152; Lodge, *Past Years*, pp. 292–311.
[114] Thomson, *Recollections and Reflections*, p. 153.
[115] A. A. R[obb], 'J. J.', in *Post-Prandial Proceedings*, pp. 8–9; J. J. Thomson, 'On the Passage of Electricity Through Hot Gases', *Philosophical Magazine*, vol. 29 (5th Series) (1890), pp. 441–9; J. J. Thomson, 'On the Effect of Electrification and Chemical Action on a Steam-Jet, and of Water Vapour on the Discharge of Electricity Through Gases', *Philosophical Magazine*, vol. 36 (5th Series) (1893), pp. 313–27.
[116] Thomson, *Recollections and Reflections*, p. 153.

circumstances of seances. Few instruments proved rhetorically more useful here than the spectroscope, partly because physical–psychical scientists were aware that some their most redoubtable critics accepted this as an outstanding application of technical expertise.[117] In 1899, Benjamin Davies used the case of the spectroscope to challenge those, like Carpenter, who regarded the "common sense of educated mankind" as the ultimate court of appeal in assessing psychical phenomena. His argument was a response to a letter in a Liverpool newspaper insisting that until Crookes satisfactorily exhibited a materialised spirit before scientific witnesses, his notorious claims about manifestations that contradicted most people's experiences had to be dismissed as delusory. A similar charge, Davies explained, could be levelled at spectroscopy, a technique that he taught at Liverpool. Most people found it difficult to see the bright emission lines beyond the violet region, but this did not mean that others were deluding themselves: the "unanimous opinion of mankind", he urged, was "useless" here because the "experience of the majority is narrower than that of the individual who perceives the ultra-violet band".[118]

That vastly more experienced spectroscopist, Crookes, agreed and in 1909 told Davies's mentor that both psychical research *and* spectroscopy would be jeopardised if faint and transient effects only visible to people with "sharper eyes" had to be dismissed.[119] This was not the first time he had appealed to spectroscopy. In 1871, the astronomer William Huggins had suggested to him that they form a scientific committee to verify their claims about psychic force. Crookes was taken aback because he did not think their claims any more extraordinary than either his regarding the spectrochemical analysis of terrestrial materials or Huggins's regarding the spectrochemical study of celestial bodies: "You do not ask for a committee to examine spectra", he explained, "I did not ask for one to convince me that thallium was true".[120] For at least Crookes and Davies, Carpenter was right to expect deference to be paid to the more experienced or sharper-eyed participants, but that might involve accepting that those good at seeing spectra could also be trusted to see spectres.

[117] See, for example, William B. Carpenter, *Mesmerism, Spiritualism, & c, Historically & Scientifically Considered* (London: Longmans, Green, and Co., 1877), p. 70; John Nevil Maskelyne to Oliver Lodge, 13 September 1895, SPR.MS 35/1235, OJL-SPR.

[118] Benjamin Davies, 'Professor Richet's Address', *Liverpool Daily Post*, 11 August 1899, p. 3.

[119] William Crookes, typescript memorandum to Oliver Lodge, [circa 1909], SPR.MS 35/366, OJL-SPR.

[120] William Crookes to William Huggins, 16 June 1871, quoted in Fournier d'Albe, *Life of Sir William Crookes*, pp. 209–10, p. 210.

Psychical Researchers and Conjurors

When, in 1899, Schiller argued that scientists only became experts in psychical research after long and often bitter experiences of experimental error and trickery, he expressed a complex attitude towards trained scientific experts in psychical research that was echoed by other SPR members. By the early 1900s, the organisation was as keen as ever to exploit the scientific reputations of Crookes, Lodge, Richet and others in creating an image of intellectual credibility that many doubted. This is strikingly apparent from the choice of presidents and, more tellingly, the composition of the SPR's 'Committee of Reference'. Founded in 1885 and lasting well into the 1940s, this Committee's purpose was to referee papers intended for publication, and it was dominated by Council and other high-ranking SPR members whose scientific and medical qualifications evidently made them invaluable in giving the impression that the organisation had robust mechanisms of quality control.[121]

A long-serving member of this Committee, Lodge, was acutely aware of this symbolism. In October 1890, when his long and positive experiences of Leonora Piper's mediumship had persuaded him to get more closely involved in the SPR, he told Myers that while he felt near the "adult stage" of development as a psychical researcher, it was "by sticking definitely to physics that I shall be of most service, for only so shall I carry any weight".[122] To underline his point, he contrasted himself to Barrett, whom he judged to be someone whose "comparative neglect of Physics has made him less powerful than he ought to be".[123] There was some justification for Lodge's swipe at his fellow physicist because, despite being seven years older, Barrett's output of original physical research was meagre and he still lacked the fellowship of the Royal Society that Lodge had secured in 1887.[124]

Valuable as trained and active scientists were in bolstering the image that the SPR desired for itself, their value in executing psychical research had become, by the early 1900s, one of many sources of disagreement within the Society. Internal conflict over the proper way to prosecute psychical investigation seemed to be inevitable from the organisation's

[121] [Anon.], 'Council Meetings', *JSPR*, vol. 1 (1884–5), pp. 259–61.
[122] Lodge to Myers, 21 October 1890, SPR.MS 35/1309, OJL-SPR.
[123] Lodge to Myers, 21 October 1890. J. G. Piddington, the SPR's honorary secretary, deplored the idea of Barrett serving a second term as president because of his "constant fussiness & suspiciousness" and lack of a British and European scientific reputation: J. G. Piddington to Oliver Lodge, 24 September 1904, SPR.MS 35/1632, OJL-SPR.
[124] Barrett finally received his in 1899.

birth. When, in early 1882, the eminent spiritualist William Stainton Moses replied to Barrett's invitation to attend his conference on a possible psychical research organisation, he warned of the "disintegrating forces" threatening the future of the organisation, forces arising from the "marked social distinctions" and methodological differences between the spiritualists and intellectuals participating in the initiative.[125] One such intellectual, Henry Sidgwick, was more optimistic and later recalled that, as the SPR's first president, he tried hard to reconcile its "two heterogenous elements – persons convinced of the genuineness of the alleged effects of spiritual or occult agency, and persons like myself, who merely thought the evidence for their genuineness strong enough to justify serious inquiry".[126] The disintegrating forces were never stronger than in the wake of the SPR's 'exposure', in 1886, of William Eglinton, a medium dear to the heart of many spiritualists, many of whom reacted by resigning their SPR membership and intensifying their attack on the organisation's elitist and needlessly critical and painstaking approach to 'their' subject.[127]

Even after shedding many spiritualists, the SPR's membership was divided on a host of other questions, including the evidence for survival, the fruitfulness of studying the physical phenomena of spiritualism and the value of Myers's theory of the subliminal self. When it came to choosing a president, the diversity of opinion on these questions often became acute. In 1905, for example, Eleanor Sidgwick battled with Barrett to elect Frank Podmore because he represented the "hard-of-belief section", which did not go beyond accepting that telepathy had been proved and which had not been represented by the three previous presidents (Barrett, Lodge and Richet), who stood for the "forward" section of the society insofar as their attitudes to the physical phenomena of spiritualism and (in the case of Barrett and Lodge) survival were more positive.[128] For Eleanor and Henry Sidgwick and many other leading SPR members, the cautious section was ultimately of greater intellectual and symbolic importance because it was this section that was more likely to persuade the outside world, and especially the outside scientific world, that the SPR had to been taken seriously. It was precisely this view that underpinned the SPR's critical approach to the physical phenomena of spiritualism: as Eleanor Sidgwick explained in an 1886 critique of the

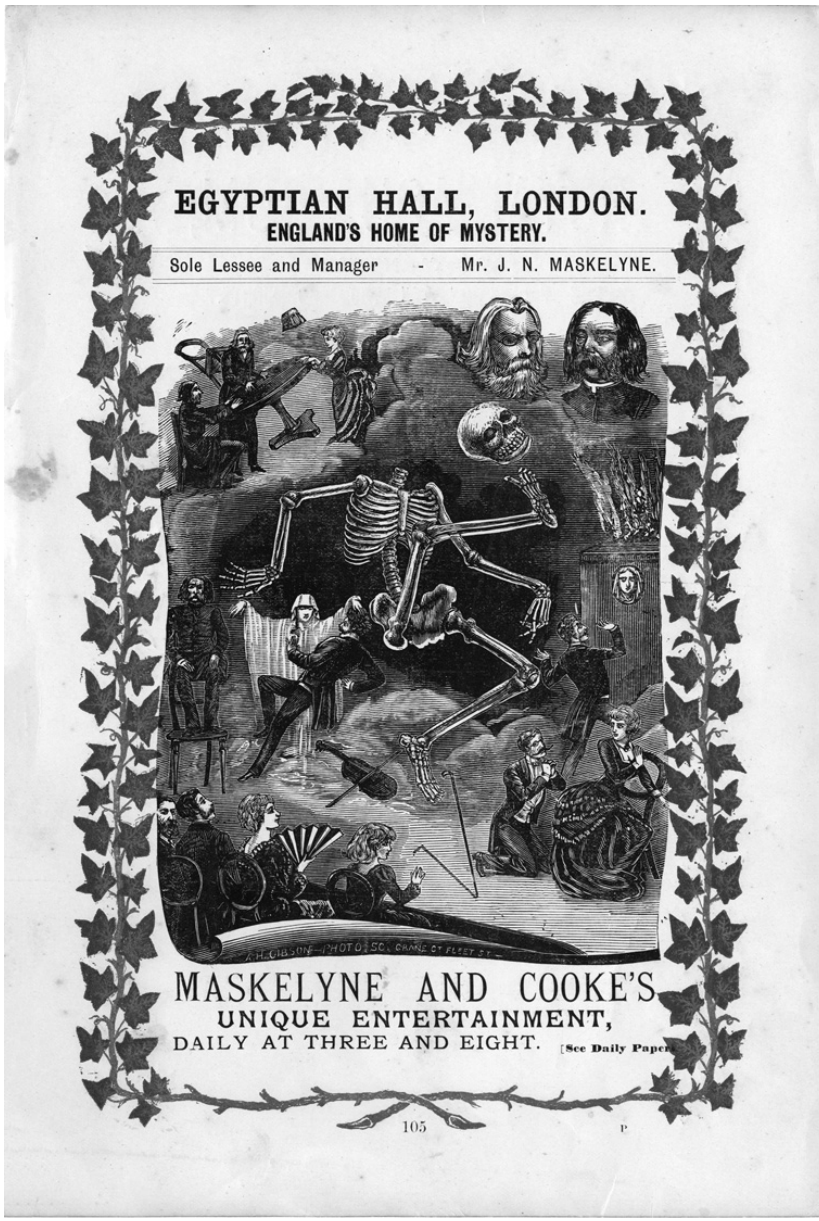
[125] William S. Moses to William F. Barrett, 12 January [1882], SPR.MS 3/A4/55, WFB-SPR.
[126] Henry Sidgwick, 'Remarks', *PSPR*, vol. 4 (1886–7), pp. 103–6, p. 103.
[127] Cerullo, *Secularisation of the Soul*, chapter 4; Williams, 'The Making of Victorian Psychical Research', chapter 8.
[128] Eleanor Sidgwick to William F. Barrett, 23 November 1905, SPR.MS 3/119.

evidence for such phenomena, it was because physical phenomena were "more probable than not" that they deserved to be more thoroughly tested than had been done before and to have their true evidential basis more firmly established.[129]

The desire of leading SPR members to persuade the world that it was subjecting the physical phenomena of spiritualism to the most searching tests possible explains why they increasingly valued conjuring as a form of expertise in psychical research. The organisation included prominent members such as Hodgson and Robert Strutt (4th Baron Rayleigh), who were amateur conjurors, and actively involved professional conjurors such as Maskelyne and Angelo Lewis ('Professor Hofmann') in its investigations (Figure 5.2).[130] One of the problems arising from this was that, as the cases of Eglinton, Palladino and Slade dramatised, conjuring expertise was considered most useful in precisely those kinds of psychical phenomena where physical–psychical scientists believed their expertise gave them an advantage. Disagreements over the relative importance of these forms of expertise were inevitable.

These disagreements certainly predated the SPR's foundation. In the wake of their psychical investigations in the 1870s, Crookes, Barrett and Zöllner found themselves attacked by conjurors, medical practitioners and fellow scientists for failing to take precautions against potential sources of deception well known to conjurors. In the heated discussion following Barrett's paper at the British Association meeting in 1876, Crookes opposed the argument that a "trained physical inquirer is no match for the professional conjuror" who might be masquerading as a medium.[131] By "close examination", Crookes insisted, the physical scientist was fully able to outwit the conjuror, whose performance depended strongly on the choice of venue, "apparatus" and the ability to control who participated and where they stood. Another physical–psychical scientist in attendance was Rayleigh, who departed from this view in maintaining that the "special accomplishments" of a conjuror were of "great value" in both assessing and creating a psychical performance, and he revealed that one such person had accompanied his private investigation of Henry Slade, which resulted in the conjuror being unable to explain the medium's performance.[132]

[129] [Eleanor] Sidgwick, 'Results of a Personal Investigation into the Physical Phenomena of Spiritualism', *PSPR*, vol. 4 (1886–7), pp. 45–74, p. 74.
[130] On Strutt's conjuring see Strutt, 'Robert John Strutt', p. 1111.
[131] Crookes cited in [Anon.], 'British Association at Glasgow', p. 89. Crookes wrongly ascribed the argument to Barrett. Stewart does not appear to have attended the meeting but later agreed with Crookes: Stewart reported in [Anon.], 'Report of the General Meeting', *JSPR*, vol. 2 (1885–6), pp. 338–46, p. 346.
[132] Rayleigh cited in [Anon.], 'British Association at Glasgow', p. 89.



5.2 Handbill for one of John Nevil Maskelyne and George Cooke's late-Victorian stage entertainments at the Egyptian Hall, London. It shows many of the familiar phenomena of spiritualistic seances – including levitating tables and ghostly forms – that the performers claimed to reproduce by conjuring. Reproduced by permission of the Bill Douglas Centre, University of Exeter.

Rayleigh's concession to the expertise of a conjuror is particularly significant in the light of his negative experience of Crookes's behaviour during Annie Eva Fay's seances the previous year. He was temporarily "disgusted" with Crookes, apparently because Crookes had tried to justify an instance of Fay's fraudulence as the "only course" open to her after Rayleigh's disbelief upset the psychological conditions favouring manifestations.[133] Myers shared Rayleigh's misgivings about Crookes, whom Myers believed had been duped by Fay on one occasion and who seems to have felt his authority threatened by the scientifically weightier Rayleigh.[134] These problems would have persuaded Myers and Rayleigh that even a physicist with Crookes's extensive experience of seances needed a conjuror's help.

One of the problems that Myers and other leading SPR members had with Crookes was that despite these failings, they greatly admired his earlier investigations of Home and could not afford to lose the scientific lustre that he brought to the organisation through public attacks. This is apparent from the strategic way in which Eleanor Sidgwick, Barrett and Myers handled his work in SPR publications. In a footnote to her notorious paper of 1886, Sidgwick apologetically opined that it was "undesirable that even men of established scientific reputation like Mr. Crookes and Professor Zöllner should hold themselves exempt from mentioning even the simplest precautions".[135] Yet, partly because Zöllner was now dead, Sidgwick clearly felt it easier to criticise him than Crookes for specific failings in this direction. She attacked the astrophysicist for methodological lapses in the Slade tests that would have allowed even an amateur conjuror to persuade him of the existence of four-dimensional beings, but she merely referred to Crookes's experiments on Home's alteration of the weight of a board as one of the reasons why it was the duty of the SPR to make further investigations of the physical phenomena. Three years later, in reviewing a biography of Home by his widow, Barrett and Myers accepted the "drawback" that the other mediums through whom Crookes had "obtained striking results" had subsequently been exposed, but that this did not "necessarily affect the experiments with Home", which still amounted to unrivalled testimony of physical phenomena and whose main weakness was that they had not been confirmed by other scientists.[136]

[133] Lord Rayleigh to Frederic W. H. Myers, 15 January 1875, Myers $2^{42\ (1)}$, Frederic William Henry Myers Papers, Trinity College Library, Cambridge.
[134] Frederic W. H. Myers to Oliver Lodge, 15 March 1892, SPR.MS 35/1331, OJL-SPR; Lord Rayleigh to Evelyn, Lady Rayleigh, 10 January 1875, Rayleigh Family Papers, Terling Place, Terling, Essex.
[135] Sidgwick, 'Results of a Personal Investigation', p. 65n.
[136] William F. Barrett and Frederic W. H. Myers, 'D. D. Home, His Life and Mission', *JSPR*, vol. 4 (1889–90), pp. 101–16, p. 105.

A more telling assessment of Crookes appeared in one of the addresses that Lodge gave as SPR president, a position he agreed to fill to give the organisation the kind of intellectual leadership it sorely needed following the deaths of Henry Sidgwick and Myers in 1900 and 1901 respectively. Here, Lodge followed Eleanor Sidgwick's example of contrasting Crookes and Zöllner. As far as he knew, Crookes had never testified to an instance of the passage of matter through matter, while Zöllner's evidence for this phenomenon did not "leave a feeling of conviction on the unprejudiced mind".[137] But more significant was the fact that he judged Crookes's testimony for materialised spirits to be "detailed" and almost as hard to resist as accepting the "things testified".[138] This is not how Lodge had seen it in a draft of the address on which he had asked Crookes to comment. There, Lodge had implied that the "impositions of a conjuror" were the *veræ causæ* of materialisation phenomena, a claim that undoubtedly owed something to what Myers had told him in 1892 about the Fay seances.[139] Unsurprisingly, Crookes objected to this implication and Lodge was evidently persuaded to remove the offending sentences.

I want to suggest that Lodge's decision was helped by at least two related anxieties. First, he was clearly trying to protect Crookes's reputation in an organisation that appeared to be more equivocal about his work. Not long after Lodge's address, Frank Podmore, one of the SPR's most industrious workers, published *Modern Spiritualism*, a lengthy critical history of the subject that, while not presented as an official SPR publication, came with the blessing of such leading figures in the organisation as Eleanor Sidgwick, Hodgson and Myers. The problem for Lodge and, *à fortiori*, Crookes was that Podmore voiced in public what some SPR members had privately suspected for years: that Crookes's evidence for Cook and Fay was poor and left open the strong possibility of fraud. Podmore even questioned Crookes's hallowed evidence for Home and effectively reiterated the views of so many psychologist critics of spiritualism when he implied that Home was a "practised conjuror" who, by dictating the conditions of seances to suit his purposes, was able to fool such "untrained observers" as Crookes, Huggins and Cox.[140] In a Carpenteresque salvo, he emphasised that Crookes's "previous training did not necessarily render him better qualified to deal with problems differing widely from those presented in the laboratory" and, drawing on the warnings of Hodgson,

[137] Lodge, 'Address by the President', p. 46.
[138] Lodge, 'Address by the President', p. 45.
[139] William Crookes to Oliver Lodge, 28 January 1902, SPR.MS 35/346, OJL-SPR; Myers to Lodge, 15 March 1892.
[140] Frank Podmore, *Modern Spiritualism. A History and a Criticism*, 2 vols. (London: Methuen and Co., 1902), vol. 2, p. 240.

Davey and Eleanor Sidgwick about the difficulties of continuously observing mediums, he charged that Crookes's attention may have been focussed so strongly on his apparatus that he failed to spot the "seemingly irrelevant movements" by which Home achieved his goals.[141]

Podmore's critique would have delighted Maskelyne, who had made a similar point to Lodge in 1895 by inverting the same psychical–spectroscopic analogy deployed by physical–psychical scientists to assert their authority. The "twitch of a muscle" of a medium, he warned, would be as telling to an expert on trickery as the "slight displacement of a line in the spectrum of an element would signify to a physicist".[142]

Lodge's second anxiety was that, as Podmore argued, critiques of Crookes could be turned into critiques of the capacity of *all* trained scientists to compete with the conjuror in psychical investigation, especially those physical scientists whose gaze was often focussed on apparatus. He had long found this difficult to accept. In an early paper on thought-transference, he strategically emphasised that had he "merely witnessed facts as a passive spectator" and accepted "imposed conditions", he could have been duped by a conjuror, but because he controlled the "circumstances" and arranged his own experiments, he had "acquired a belief in the phenomena observed quite comparable to that induced by the repetition of ordinary physical phenomena".[143] As critics of psychical research were at pains to stress, however, this confidence in experimental control was often deceptive and made the trained scientist an easy victim for a conjuror masquerading as a genuine medium.

Lodge's actions and writings suggest that he clearly understood that scientists and conjurors offered complementary forms of expertise to psychical investigation. In 1887, for example, he agreed to join an SPR committee for investigating spiritualistic phenomena whose members included a conjuror (Angelo Lewis), Gurney, Myers and two fellow physical scientists (Barrett and Crookes).[144] Moreover, he clearly had little difficulty with Maskelyne participating in the Palladino seances in Cambridge, and in the controversy following her 'exposure' in 1895, he

[141] Podmore, *Modern Spiritualism*, vol. 2, p. 240.

[142] John Nevil Maskelyne to Oliver Lodge, 13 September 1895, MS.SPR.35/1235, OJL-SPR. The "slight displacement" to which Maskelyne referred was the shift in the position of the dark lines in the absorption spectra of stars. The shift was relative to the position of the bright lines in the emission spectra of the vapours of the chemical elements corresponding to these lines and to the reference absorption spectrum for all celestial bodies: the solar spectrum. By analogy with the Doppler shift, the movement was explained in terms of the change in wavelength of light caused by the movement of the star towards or away from the observer.

[143] Lodge, 'Account of Some Experiments', p. 190.

[144] Balfour Stewart, 'Address', *PSPR*, vol. 4 (1886–7), pp. 262–7, p. 267.

was moved to praise Maskelyne's open-minded approach and said that his feats, as well as those of other conjurors, had been "constantly" in his mind when judging Palladino's genuineness.[145] But while accepting that Maskelyne and others had *some* authority in psychical research, he maintained that they did not have *supreme* authority. In a telling footnote to his Palladino report he denied that a conjuror's evidence was "necessarily of a kind such as to render other evidence superfluous" or "always superior to that of a person whose life-long study has been the pursuit of truth".[146]

N-rays and Psychical Expertise

Lodge's confidence in the capacity of trained scientists to produce reliable evidence of psychical effects became particularly visible in the early 1900s when two of the most powerful figures in the SPR published papers questioning this capacity. The figures were Eleanor Sidgwick and Alice Johnson. In the wake of the deaths of Gurney (in 1888), Myers and, above all, her husband Henry, Sidgwick played an enormously significant role in ensuring the continuity of the SPR's work.[147] In 1888, she took over from Gurney as the editor of the SPR's *Journal* and *Proceedings* and between 1907 and 1932 she served as honorary secretary, in which capacity she (and the relatives and colleagues whom she co-opted) dominated the SPR's development well into the interwar period. In these official roles and in her studies of telepathy, sensory and motor automatisms and the physical phenomena of spiritualism, she embodied what she had called the "hard-of-belief" section of the SPR.[148] When, in 1903, Alice Johnson took over as editor of the SPR's periodicals, there was no question about the continuity of Sidgwick's robust editorial line, since she had been so closely involved in Johnson's scientific and psychical education. Johnson had studied natural sciences at Sidgwick's Cambridge college (Newnham) and worked as a demonstrator in animal morphology in the college's Balfour Laboratory, and in the 1890s served as Sidgwick's private secretary and assistant.[149] In 1907, she became the SPR's first

[145] Oliver Lodge, 'The Exposure of Eusapia', *Daily Chronicle*, 5 November 1895, p. 3. Citation from Oliver Lodge, 'Unusual Physical Phenomena', *Liverpool Daily Post*, 2 January 1895, p. 7.

[146] Lodge, 'Experience of Unusual Phenomena', p. 315n.

[147] Alice Johnson, 'Mrs Henry Sidgwick's Work in Psychical Research', *PSPR*, vol. 44 (1936), pp. 53–93.

[148] Myers defined 'automatisms' as actions of the body taking place independently of the conscious will. The sensory variety included hallucinations and the motor variety of trance writing ascribed by spiritualists to spirits. See Myers, *Human Personality*, vol. 1, pp. xiv–xv.

[149] Helen de G. Salter and Isabel Newton, 'Obituary – Alice Johnson', *PSPR*, vol. 46 (1940–1), pp. 16–22.

salaried research officer, and was thus especially mindful of the problematic nature of psychical expertise.

Sidgwick would have surprised few of her auditors when, in her presidential address to the SPR in 1908, she contrasted the great strides that had been achieved in studies of hypnotism, phantasms of the living and telepathy with those in the physical phenomena of spiritualism, which, as far as she was concerned, stood "almost exactly where it did" when the SPR was founded.[150] The only progress had been in the negative direction, insofar as Hodgson and Davey had yielded "more definite experimental knowledge of the possibilities of mal-observation" and others had shown that unconscious muscular action played a bigger part in some phenomena than first assumed.[151] Sidgwick certainly did not think spiritualism should be abandoned given the quality of some evidence relating to physical phenomena, but progress towards stronger evidence required better policing of fraudulent mediums and a better understanding of the sensory hallucinations experienced by investigators. Many of Sidgwick's auditors would have known that she had recently argued that an underestimate of this latter problem had blighted the Italian neurologist Enrico Morselli's new evidence in favour of Palladino's genuineness: Morselli had been overly confident in his observational acumen and mistaken in his assumption that an absence of evidence of fraud was evidence of its absence.[152]

What may have surprised Sidgwick's auditors was that she chose to illustrate the experimental dangers of sensory hallucination by means of a potted history of a recent controversial topic in the physical sciences: N-rays. In 1903, the French physicist René Blondlot caused a scientific sensation when he claimed to have produced experimental evidence for a new form of invisible radiation that seemed to be emitted by electric sparks, incandescent lamps, sunlight and some solid bodies experiencing mechanical strain.[153] Later, both Blondlot and his colleagues at the University of Nancy reported that the rays emanated from organic sources such as animal muscles and brains and the human eye. Unsurprisingly, news of the discovery of invisible rays associated with the human body was hailed by many spiritualists, occultists and psychical researchers as new experimental evidence for Reichenbach's od and vital effluences, and a possible mechanism for brain waves.[154]

[150] Sidgwick, 'Presidential Address', p. 9. [151] Sidgwick, 'Presidential Address', p. 10.
[152] E[leanor] M[ildred] S[idgwick], Enrico Morselli's *Psicologia e 'Spiritismo'*, *PSPR*, vol. 21 (1908–9), pp. 516–25.
[153] See Mary Jo Nye, 'N-Rays: An Episode in the History and Psychology of Science', *Historical Studies in the Physical Sciences*, vol. 11 (1980), pp. 125–56.
[154] See, for example, Arthur Lovell, 'Reichenbach's Researches', *Transactions of the Vril-ya Club*, no. 2 (1904), pp. 1–34; Jules Regnault, 'Odic Phenomena and the New Radiations', *Annals of Psychical Science*, vol. 1 (1905), pp. 145–63.

One of the most controversial features of N-rays was that they were difficult to detect. The methods of detection included observing the marginal increase in the brightness of faint electric sparks or phosphorescent spots exposed to the rays. The difficulty that many had in replicating the effects reported by Blondlot and his colleagues engendered suspicions that the subtle visual changes, normally experienced in darkened rooms, were subjective. Among those who failed to repeat Blondlot's findings were Crookes, Rayleigh and one of Rayleigh's closest American colleagues, the optics expert Robert Wood.[155] Wood visited Blondlot's laboratory and eventually published damning evidence that Blondlot had merely imagined the effects of the alleged rays (in one test, Wood surreptitiously replaced a metal file believed to be a source of the rays for a piece of wood having a similar size and shape, and Blondlot still claimed that it made faint objects brighter). While Wood's denouement quickly destroyed scientific interest in N-rays, Sidgwick would have known from her brother-in-law's response that this did not settle the question of whether N-rays existed.[156] But the episode also gave Sidgwick an example of the possibility that, even in their physical researches, trained scientists could be victims of hallucinations caused by a strong expectation of particular effects. When physicists made forays into a domain where darkened rooms, faintly luminous effects and replication problems were even more common, they were at even greater risk of self-delusion and the scientific world had an even greater right to expect caution.

The next time that N-rays were mentioned in an SPR publication was in 1910, when Lodge used them to develop a counter-argument that trained physicists did have the appropriate skills for investigating certain classes of psychical phenomena. He was responding to a recent study published in the SPR's *Proceedings* in which Alice Johnson effectively extended her mentor's argument that perfectly well-educated individuals could experience hallucinations while witnessing the physical phenomena of spiritualism, although this did not signify mental imbalance, since hallucinations were common in everyday life.[157] Johnson's focus was primarily on witnesses to the physical phenomena occurring in Home's presence. More than any official SPR publication to date, however, she challenged Lindsay's and Crookes's accounts of the medium's levitations: Lindsay appears to have been the victim of an "excited imagination", probably caused by Home's powers of

[155] Crookes revealed this in the Minutes for 4 January 1905, Ghost Club Minutes, Volume 5, Add. 52262, GC-BL; Rayleigh, *Third Baron Rayleigh*, pp. 358–9; Robert W. Wood, 'The *n*-Rays', *Nature*, vol. 70 (1904), pp. 530–1.
[156] Rayleigh, *Third Baron Rayleigh*, p. 359.
[157] Alice Johnson, 'The Education of the Sitter', *PSPR*, vol. 21 (1907–9), pp. 483–511.

suggestion and Crookes may have mistaken a visual illusion for a genuine effect.[158]

What irked Lodge was that Johnson did not distinguish more sharply reports of psychical phenomena from novices in the "art of making and learning from experiments" and those who were skilled in these regards.[159] The Principal of Birmingham University and long-time promoter of scientific and technical instruction was bound to argue that these skills made the "experienced experimentalist" (including Crookes and Lindsay) trustworthy in studying all kinds of phenomena, and gave them an "undeniable advantage" over others in forming a "valid and secure opinion".[160] The trained scientist was, as Johnson had contended, a "novice" in the "particularly treacherous field" of psychical research, but their ability to "manipulate and deal critically with phenomena", and especially "faint" physical phenomena, made them less likely to mistrust their judgement and more likely to become an expert in the new field.[161]

The N-rays episode well served Lodge's argument. Novices invited to witness the rays "sometimes saw them" but rejected their observations as "anticipatory hallucination".[162] "Skilled physicists" from Britain did not see the rays, Lodge opined, and this was evidently because they were better at manipulating and dealing critically with sometimes "faint" phenomena.[163] Whether or not Lodge knew of Crookes's and Rayleigh's failures to see N-rays, he clearly felt that some physicists were simply more skilled than others (including Blondlot) in this regard, and that they embodied many of the elements of true psychical expertise.[164] Ultimately, Lodge accepted Johnson's argument that experts in a range of fields could contribute significantly to, and become experts in, psychical research, but it is unlikely that he ever completely shared her confidence in fields other than the sciences nurturing the scientific "habit of mind" required in the

[158] Johnson, 'Education of the Sitter', p. 493.
[159] Oliver Lodge, 'The Education of an Observer', *JSPR*, vol. 14 (1909–10), pp. 253–8, p. 254.
[160] Lodge, 'Education of an Observer', pp. 254–5.
[161] Lodge, 'Education of an Observer', pp. 254 and 257.
[162] Lodge, 'Education of an Observer', pp. 257–8.
[163] Lodge, 'Education of an Observer', pp. 257–8.
[164] Rayleigh's son Robert (later the Fourth Baron Rayleigh), who witnessed his father's N-ray experiments, agreed that this episode showed the lessons that experimental physics had for psychical research. In 1932, he argued that just as N-rays were rejected and cathode rays accepted on grounds other than such "objective records" as photographs, so disbelief in physical aspects of psychical phenomena could not hinge on the absence or presence of similar records: Lord Rayleigh to Theodore Bestermann, 19 September 1932, in Theodore Besterman, notebook, Add. MS 57729, British Library.

psychical researcher.[165] Lodge's problem was that Johnson's psychical researcher was not the kind of person that he believed could be trusted to successfully revive an area of investigation that, in his and Barrett's opinion, had been neglected by the SPR for too long and for which physicists and physiologists had "direct and repeated experience": the physical phenomena of spiritualism.[166] It is not at all surprising that Lodge's staunch defence of the capacities of British physicists to tackle telekinesis and N-rays took place in a period when he thought it high time that physicists or physicists collaborating with other kinds of trained scientist should spearhead this initiative.

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This chapter has shown that the proposed solutions to the problems of expertise in psychical investigations were closely bound up with particular interpretations of psychical phenomena. The conflicts that Carpenter had with Crookes and Barrett, Wundt with Zöllner, and Tuckett and Johnson with Lodge suggest that those who believed that psychologists and medical practitioners wielded supreme scientific authority tended to agree that psychical phenomena were primarily subjective and therefore best studied by those with experience of abnormal mental conditions; and those who believed that physicists had an important part to play in psychical research tended to agree that some psychical phenomena had an objective physical existence outside the mind and body of the psychic subject, and could therefore be studied by the tools and techniques of the physical sciences. Likewise, those who privileged spiritualists' more sympathetic approaches to mediumship were more likely to agree that the spiritual interpretation of manifestations was the most plausible; and those who privileged conjurors and detectives as spiritualistic investigators were more likely to accept that fraudulence explained much of what happened in seances.

The need to speak of tendencies rather than definite correlations is required by the complexity of the positions encountered in this chapter. Rayleigh, for example, did not think all the physical phenomena of spiritualism were the result of mediumistic trickery or self-deception, but he was prepared to defer to the expertise of conjurors in this question more than were Crookes and Lodge. Eleanor Sidgwick and Alice Johnson accepted that subjective impressions accounted for a significant amount of evidence for the physical phenomena of spiritualism, but they were as

[165] Alice Johnson, 'Note on the Above Paper', *JSPR*, vol. 14 (1909–10), pp. 259–60, p. 260.
[166] Lodge, 'Scientific Attitude to Marvels', p. 471; Barrett remarks in [Anon.], 'General Meeting', pp. 182–4. Citation from Lodge, 'Education of an Observer', p. 257.

likely to defer to somebody with extensive experience in psychical investigation as a trained psychologist.

The entanglement of questions of expertise and interpretation in psychical research was not limited to SPR circles. Well into the twentieth century, contributors to general periodicals and newspapers frequently sided with psychologists and conjurors in declaring physical scientists to be out of their depth in studying phenomena that clearly seemed to be the result of either mental aberration or fraudulence.[167] Undoubtedly of greater consequence to physical–psychical scientists were the views of close professional colleagues, which indicate the limited success of physical–psychical scientists in persuading others that there was, to adopt a phrase of Gurney's, a "definite corner" of psychical research where physical scientists could lead. A telling example is George F. FitzGerald, who, as we saw in Chapter 2, argued in 1893 that since psychical research occupied a "borderland" in "close proximity to hysteria, lunacy &c" then its "proper students" were "physicians, not physicists", and certainly not people "without scientific scepticism, like Theosophists".[168] Another of Lodge's Maxwellian colleagues, Heaviside, proved only marginally more hopeful for physicists. The "physical basis" of spiritualism would "some day be attacked by physicists", he suggested to Lodge in 1895, but in its present state spiritualism was "more fit for the hypnotic doctors to study".[169] The example of Crookes, whom he thought had been humbugged by Home and "got taken in" by 'Katie King', evidently confirmed his doubts about physicists' fitness for spiritualistic investigation.[170]

Lodge's response to criticism from such close quarters is unknown, but his subsequent writings do not suggest any *immediate* loss of confidence in the contributions that physical scientists could make to psychical research. But in the medium and long term, his confidence and that of other physical–psychical scientists ebbed or least changed form. By the early 1900s, they were finding it difficult to achieve this goal, partly because of the want of strong psychical cases, and because of heavy professional commitments that prompted fears that leading SPR members were too busy to devote the necessary time and energy to psychical research.[171] For many physical–psychical scientists inside and outside the SPR, however, a pragmatic solution to these difficulties lay in exploiting

[167] See, for example, [Anon], 'Transcendental Physics', *Saturday Review*, 11 September 1880, pp. 327–8; [Anon.], 'The Professors and the Conjuror', *Speaker*, vol. 12 (1895), pp. 467–8; Robert Hughes, 'Seeing Things: The Scientists and Spiritualism', *Pearson's Magazine*, vol. 21 (1909), pp. 188–97.
[168] FitzGerald quoted in [Anon.], 'Response to the Appeal', p. 19.
[169] Oliver Heaviside to Oliver Lodge, 11 January 1895, MS Add. 89/50(ii), OJL-UCL.
[170] Oliver Heaviside to Oliver Lodge, 28 January 1895, MS Add. 89/50(ii), OJL-UCL.
[171] Ferdinand C. S. Schiller, 'The Future of the S.P.R.', *JSPR*, vol. 10 (1901–2), pp. 74–7.

forms of expertise besides the experimental, and which most of them had long used in the context of the physical sciences: scientific writing and lecturing. How they used popular and semi-popular scientific texts to safeguard and invigorate the possible connections between physics and psychics in the early twentieth century is the task of Chapter 6.