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SPECIAL SUBSECTION COMMENTARY

The Neuroscience of Spirits: A Spark in the Dark

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HIGHLIGHTS

Rather than prove the paranormal, testimonials about anomalous experiences during spirit releasement therapy arguably support biomedical explanations.

KEYWORDS

History of hypnosis, history of hypnotherapy, neurology of spirit possession.

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INTRODUCTION

> [S]pirits only dwell in the cerebral cells.
> Beard, (1879). (p. 67)

It is not easy to classify Nancy Smoot Tramont's Target Article. Is it a testimonial of a religious delusion? Is it the report of a husband-wife *folie-à-deux*, nourished by electrical discharges in the mesial temporal lobes (Persinger, 1987)? Or is it simply a widow's romantic and kitschy text memorial of her deceased husband's esoteric life? Be it as it may, the fact that I do not have to comment on a scientific text frees me from having to stick to orthodox rules of commentary writing. My text will present what Tramont promised to present (Smoot-Tramont, 2023) but somehow omitted, that is, very brief histories of each (1) hypnosis and hypnotherapy, (2) spirit possession, and (3) academics' life transitions. I will write from a cognitive neuroscience perspective and conclude that the thoughts developed in the target article do not make a useful contribution to the scientific literature.

Hypnosis and Hypnotherapy: A Very Brief History

Early work on hypnosis and hypnotherapy already harshly criticized the esoteric mud, in which many 19th-century therapists, amateur or professional, loved to wallow. Particularly mesmerizing is Robertson's (2008) compilation of the complete writings of James Braid, the father of hypnotherapy[1]. It contains essays, reports, and pamphlets giving testimony to a modern and enlightened view of hypnotic phenomena, free of the dark side of spirituality into which the Tramonts have obviously fallen back. Criticizing the precursor of hypnotism, animal magnetism, Braid made fun of those who believed that magnetic energies were needed to induce those states of the mind, whose value for therapeutic purposes he never denied. Likewise, the often religiously nourished critique of a "Satanic agency" underlying hypnotic trance was mocked about by Braid (1842, in Robertson, 2008 p. 376-381), who would never succumb to the view that

"outside forces" mentioned by a hypnotized individual would be "outside" in a literal sense (as assumed by the Tramonts in the case of her and her husband's clients). Braid strongly rejected "dark-side-views" in many fields of the borderlands of science. Thus, he considered clairvoyance a fallacy.[2], designated homeopathy a "palpable absurdity" (Braid, 1853; cited in Robertson, 2008, p. 107; 108). On the other hand, he presented a visionary anticipation of the notion of a placebo (Braid, 1853; cited in Robertson, 2008, p. 271). Coining the term "neurypnology" or "neuro-hypnotism", Braid (1843) clearly recognized the neural basis of hypnotic phenomena and evidently convinced neurologists of his time to take the matter seriously (e.g., Beard, 1881; see also Oakley and Halligan, 2013, who review the more modern literature). Yet, while the cerebral basis and the neural correlates of hypnotic suggestion and trance phenomena are important for the understanding of what happened to the Tramonts and their patients, neuroscience alone cannot provide the sole "explanation". Some notes in the target article on cultural variations among individual patients are indeed interesting (Smoot-Tramont, 2023, p. 729; differences between the US versus Russia/Eastern Europe patients). Anthropological studies can provide novel frameworks to better understand hypnotic interventions and possession states in natural settings (Ravenscroft, 1965; Bhavsar et al., 2016).

Spirit Possession: A Very Brief History

In combination, the terms "spirituality" (or "spiritual") and "science" (or "scientific") are used with a steadily increasing frequency in the biomedical literature (Fig. 1). I emphasize this to show that there is by no means a *dis*interest in the topic from the part of established science. On the contrary, the importance of scientific investigations of spiritual belief for illuminating how the brain works in health and disease is increasingly appreciated (cf. Brugger and Mohr, 2008).

Historically, neurology has long been a forerunner in this respect (see Brown, 1983; Hammond, 1876 for reviews of the early literature). While some of the early work was devoted to the physics and physiology of spiritualism in the narrow sense, i.e., procedures to mediate the purported communication with the deceased (e.g., Hammond, 1870; Faraday, 1853), modern studies are more concerned with the relation between spirit possession phenomena and concepts of personhood and intentionality (e.g., Rashed, 2020).

Most stimulating, from a neurocognitive stance, are studies that show how brains (or nervous systems, more generally) enable persons to develop a sense of self and under which conditions such a sense is lost. Phenomena of "alien control" and the hearing of voices (auditory-verbal hallucinations) are as relevant as is spirit possession in the narrow sense (Blakemore et al., 2003; Polito et al., 2018; Stephan-Otto et al., 2023). Work on the functional neuroanatomy of possession phenomena (Deeley et al., 2014) has illuminated our current-day conceptu-

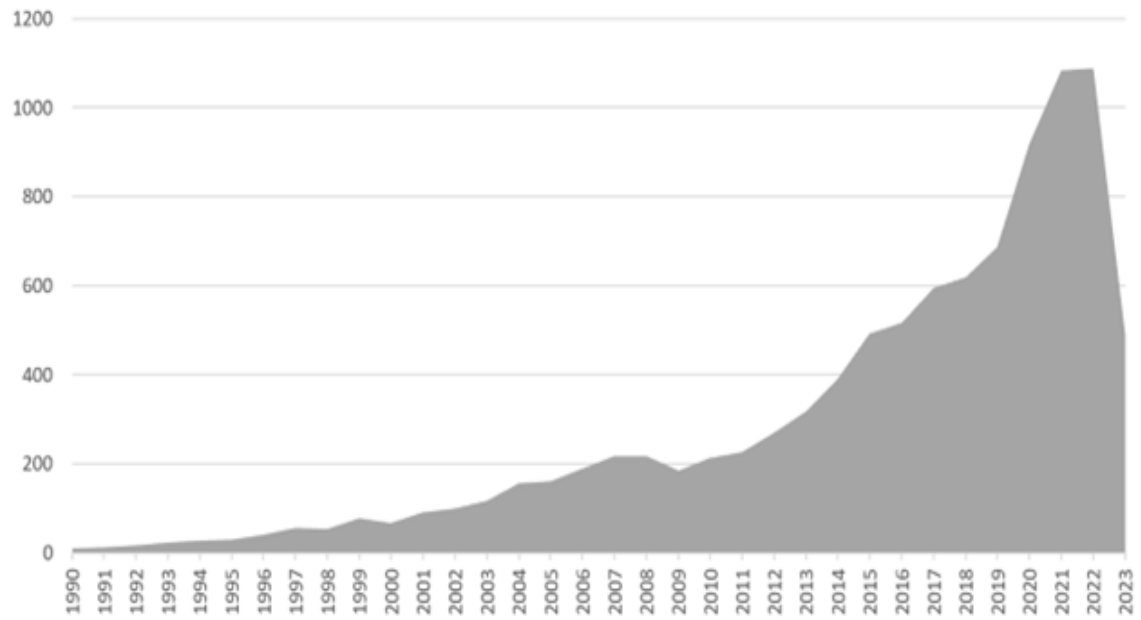

Figure 1. Frequency of publications containing the terms "spirituality" (or the adjective "spiritual") and "science" (or the adjective "scientific") between 1990 and 2023 according to PubMed (total entries = 8450). Note: Before 1990, the number of annual publications was less than 10, adding up to a total of 7683 publications between 1886 and 1989

alizations of the borderlands between self and nonself. It illustrates how heterogenous the cognitive processes underlying the feeling of a unified sense of self are. Naïve notions of spirits as outside agents abound all over the world. Tramont's thoughts about spirits reflect the belief in an objective nature of "attached discarnate entities" as it is shared by many cultures (Pfeifer, 1994). Tramont does barely consider that spirits are creations of the human mind, haunting merely subjective planes (see opening citation by 19th-century American neurologist George Beard). In this respect, the lengthy patient reports[3] are worthless if not counterproductive: who tells which dark force had originated in an individual patient and which in the Tramonts' brains? Reportedly, all patients were "open-minded" (Smoot-Tramont, 2023, p. 729), but while Tramont understands this term in an everyday sense, the context suggests otherwise: I see it synonymous with "naïve", "gullible" and "craving for crap".

Such dark thoughts may be interesting from the perspective of a sociology of science or from a clinical point of view. They illustrate the broad range and the extraordinary persistence of popular delusions (Tramont deals with past life regression, communication with the dead, prophetic dreams, extraterrestrial influences, etc.). Already Mackay (1841) opened his chapter on animal magnetism as the precursor of hypnosis with the phrase, "The wonderful influence of imagination in the cure of diseases is well known". But as imaginative as Tramont's thoughts may be, they do not contribute novel aspects to the fields of hypnosis or hypnotherapy. Paraphrasing Mackay (1841), they definitely belong to the "madness of crowds".

Academics' Life Transitions: A Very Brief History

As admirable life as transitions can theoretically be, they are devastating if a medical doctor's appreciated clinical work is gradually replaced by theorizing about ostensibly paranormal phenomena. Charles Tramont's transition "from baby doctor to witch doctor" (subtitle of target article), follows a sad developmental trajectory. But it is not unique. Similarly, sad transitions can be found in the lives of many a scientist. I may refer to an especially impressive example, to the case of Ludwig Staudenmaier (1865-1933), a Bavarian priest and later a professor of chemistry. One day, he made contact with the dark forces of spirit communication and gradually advanced from a spiritistic medium into a full-blown state of psychosis (Brugger, 2001). There are other autopathographic records by academics (e.g., Fehrlin, 1912/2022; Fusar-Poli et al., 2022 for some references), each providing a lively picture of the many faces of cognitive disintegration. Particularly valuable are individual life transitions if they reveal the processes and mechanisms underlying mass delusions – Mackay's (1841) "madness of crowds". They allow us to track down the neural basis of idiosyncratic beliefs that ultimately spread to subcultures and whole societies - "from haunted brain to haunted science" (Brugger, 2001). James Braid's transition from a skillful and highly reputable surgeon to a pioneer in both pharmaceutical and hypnotic analgesia and finally to the founder of modern hypnotherapy (Kravis, 1988) reads perhaps less romantic and less dramatic. But it reflects a more healthy development, one from darkness to light.

ENDNOTES

1. In the present context of Charles Tramont's origin in obstetrics, a note on the application of hypnosis to childbirth appears worthy to be mentioned (Baird, 1853; p. 107 in Robertson, 2008).
2. Actually, he offered a substantial sum of money to anyone who would be able to prove the existence of extrasensory, or dark forces beyond doubt. He thus anticipated James Randi's famous one million dollar offer to any person demonstrating a genuinely supernatural or paranormal ability (Anonymous, 2008).
3. My favorite case is that of the vet, who had tortured animals in one of his previous lives, and whose foreign energy was now hovering as a Reptilan above him (p.xx) - what a rich combination of esoteric, paranormal, and psychoanalytic superstitions!

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