

## The art of medicine

### Placebo controls, exorcisms, and the devil

In 1784, Benjamin Franklin and Antoine Lavoisier undertook medicine's first publicly performed placebo-controlled experiments; they were seeking to debunk the healing practices of mesmerism. Franz Anton Mesmer had developed his curative methods after investigating a notorious exorcist-priest and showing that he could obtain similar results without appeals to Jesus. Mesmer claimed to have uncovered "animal magnetism", a new "fluid", analogous to gravitation. Invisible forces directed towards the mesmerist patients (usually women) would initiate a "crisis" that led to unusual bodily sensations, crying, fainting, uncontrolled gestures, fits, or violent convulsions. After treatment and "crisis", many of Mesmer's patients claimed to have experienced profound salubrious effects.

Controversy ensued and Louis XVI appointed a royal commission. The dispute was not whether mesmeric magnetism could heal, but whether there was a genuine new physical force. What we would now call placebo-controlled experiments were undertaken; the scientific team administered bogus "mesmerised" objects or treatments or, in a crossover manner, secretly dispensed the genuine articles. If the patients reacted from a dummy exposure or did not react to the bona fide article, the claims could be discounted. For example, a patient who was sensitive to the presence of "mesmerised" trees, passed out and needed to be carried out of the garden when he touched a tree deceptively labelled as "treated". Earlier, he was not affected when he touched a tree secretly "mesmerised" beforehand. Other patients went into a crisis with plain water after being told it was mesmerised, but had no sensations from surreptitiously administered authentic "magnetic" water. The commission concluded that "this agent, this fluid has no existence" and any effects were due to "imagination".

What is peculiar about the Franklin commission's report is that the placebo controls are introduced without any explanation, as if they were routine. The report does not mention that the direct inspiration for its methods came from Christian exorcism rites enacted at least 200 years earlier. It was not necessary to state the obvious: readers of the report were familiar with what were called "trick trials" from the celebrated devil controversies of the 16th century.

The basis for Reformation and Counter-Reformation exorcisms harkened back to the Gospels. Jesus of Nazareth stated: "in my name, shall they cast out devils" (Mark 16:17). Despite being the "father of lies" (John 8:45), "the devils also believe and tremble" (James 2:19) and could be commanded to acquiesce and speak truth and be a reliable witness. Typically, the devil recognised the authority of Jesus as the "Son of God most high." (Matt 8:29, Mark 5:7, Luke 8:28).

During the violent collision of the early modern religious wars, most notable in France, this power to cast out the devil and his confederates became a persuasive tool for demonstrating apostolic authority. This was especially the case for Catholics who were more comfortable with miraculous displays. These Counter-Reformation exorcisms depended on the "common knowledge" that demons could not tolerate direct divine contact (eg, holy water, consecrated wafer, or readings from the Latin scriptures). Such exposures caused the demons to writhe in pain and flee with a consequent "cure" for the victim who had been possessed. Not surprisingly, Catholic priests would abjure devils to testify to their fondness of Protestants and fear of Rome.

Exorcisms could become colossal revival meetings performed on elevated platforms built inside or outside churches with religious processions, mass proselytising, and collective confessing, singing, and praying. In bawdy relief, the possessed demoniacs provided entertainment with erotic ditties, lewd gesticulations, wild gyrations, grotesque grimaces, and shrieking animal roars. Breathtaking feats of physical prowess were exhibited in the wrestling between teams of strongmen and demoniacs. Audiences could reach 20 000 and pamphlets publicising the exhibitions throughout Europe indicated the intense interest in these spectacles.

Exorcisms were not without controversy. Much of the Catholic hierarchy worried that charismatic exorcisms opened the church to chaotic folk practices. The mostly Catholic supporters of the rites countered that these campaigns of dispossession showed the Church to be the legitimate inheritor of Jesus' authority. Protestants, who generally had an antimagical critique of Catholicism, were suspicious and easily discounted these superstitious events. Some argued that possessed victims—who were overwhelmingly women—probably had severe illnesses, were coerced by zealot preachers, or simply gave false testimony.

The "trick trial" was developed in response to this criticism, suspicion, and scepticism. The most prominent and emblematic such trial occurred in 1599, in a small town in the Loire Valley of France. A high stake political struggle set the stage and the trial is documented in multiple contemporary sources. In 1598, Henri IV formalised peace with the Huguenots (French Calvinists) with the Edict of Nantes. Although some Catholics exhausted from the Wars of Religion supported this rapprochement, others did not. It was against this background that a family from Romorantin claimed that Beelzebub and other demons had possessed their daughter, Marthe Brossier. During a process of almost daily repeated exorcisms by priests, who also happened to oppose the religious détente, the demons possessing the young woman testified that "all the Huguenots belonged

to him". Fearful of the consequences, Henri IV dispatched a commission to discredit this subversive supernatural dissent. Away from the crowded public exorcisms, in a more private place, the commission proceeded to secretly administer genuine holy water to Marthe Brossier on consecutive days but with no effect. Later, when given ordinary water poured from a special flask usually only used for holy water she contorted in pain. When an ordinary piece of iron was taken out of an ornate enclosure and presented to the young woman as a relic of the true cross, she fell to the ground tormented. Priests read to Marthe Brossier a Latin text, misinforming her that it was the Holy Scripture. In actuality, it was Virgil's *Aeneid*, and she nonetheless squirmed in agony. Other special commissions created by anti-Huguenot clergy, however, reported that, in opposition to the royal commission's finding, she could accurately distinguish bogus from genuine exposures. Reports from the different investigative teams circulated throughout Europe.

Many other well publicised exorcisms involving exposures to sham religious objects are recorded. For example, in 1565, King Charles IX arranged to meet a notorious demoniac who testified to Protestant ungodliness. This demoniac had been tested with ordinary wine deceptively mixed with holy water. Her violent reactions to the concealed holy water confirmed to observers that her possession was genuine. Later, however, when other more sceptical investigators repeated the experiment, she could not distinguish genuine from fake exposures. Other "tricks", for example, substituting ordinary wafer for consecrated wafer, were also reported in France and elsewhere.

Parallel to this religious scepticism, Renaissance humanists began to discuss their doubts about medical practices and worthless treatments that promised unimpeachable experiences of healing. In his influential essay *On the Power of the Imagination* (1580), Montaigne argued that physicians exploit the credulity of their patients with "false promises...and their fraudulent concoctions" and that much of medicine's efficacy is "the power of imagination". For example, he described a patient with "stone" who regularly received from his physician the appearances ("with all the formalities") of a medical enema but without the active ingredients. When the patient's wife noticed the bogus situation, she tried to save money and "make due with warm water". Her husband found out and insisted on returning to the physician with his "genuine" and expensive treatments. In another case, Montaigne described a woman who was convinced that a swallowed needle was causing her throat pain. Her physicians discounted her story but were unsuccessful in relieving her pain until one gave her an emetic and secretly placed a needle in the vomitus.

Franklin and Lavoisier were avid readers of Montaigne and borrowed from his compilations of Renaissance theories of medical scepticism and the imagination. Their pioneering efforts with placebo controls represented the simple



*Magnetism Revealed* (1784) Franklin routs the Mesmerists

absorption of an already well known 16th-century method for deciding veracity in the midst of social controversy and colliding claims. For Franklin's contemporaries, the commission was an unmistakable re-enactment of the devil trials (placebos and all). As the contemporaneous image *Magnetism Revealed* illustrates, Mesmer and his henchmen were the new secular devils (figure). With Lavoisier at his side, Franklin is holding up the bright light of their report that banishes the charlatan mesmerists with their hoofs and donkey ears. A devilish animal in the form of a bat-owl testifies with the signature presence of the devil. On the lower right, a woman in a fainting crisis, held steady by a man, takes the pose so often seen in earlier exorcisms illustrations.

Ultimately, this strange story of devils, mesmerism, and placebos describes a fundamental human tension between exuberant belief and rational scepticism. The methods developed for adjudicating these particular otherworldly and healing claims inspired a momentous leap for medicine and also helped to establish the nefarious connotations associated with placebo effects.

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**Further reading**

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