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RUMINATIONS ON AN ELECTROTHERAPEUTIC BOX

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KAPUT OBJECT, CONFINED SENSE

THIS IS A BOX CONTAINING AN APPARATUS FOR ELECTROTHERAPEUTIC treatment. I found it in a flea market in Malmö where it was displayed openly so that passers-by could admire its glass electrodes, purple velvet lining, and electric generator. The combination of glass, velvet, and power supply was impossible to resist, even if the machinery did not work. One could tell that the different parts had not been replaced and that the box itself was an original part of the ensemble. Clothed in black embossed paper, with a small handle and two metal clasps, it has an air of discretion and intimacy about it. Obviously, it was made not to disclose its contents. No manufacturer’s logo distracts from the uneven touch of its riffled surface. Then again, its handy shape and portable design bear evidence of its prior use: an electrotherapeutic kit for easy transport.

Long before the box ended up in a flea market, it was used to ease numerous kinds of pain that affected the bodies of early-twentieth-century persons. Regarded as a historical object, the box comes with a practice – or at least the remnants of a practice – that can be contextualised with the aid of documents. Had I encountered the box in a museum setting, signs would undoubtedly

**Fig. 37.2** Closed electrotherapy box
had provided me with information concerning the medical use of electricity, how the instrument was applied to the body, and what kinds of ailments it was prescribed against. However, it would certainly not have been possible to touch the box. As Fiona Candlin has pointed out, the modern museum space is one that circumscribes the possibility of tactile engagement with the displayed objects (2010: 58). Occasionally, museums will give visitors the opportunity to touch and handle parts of their collections, but these items have been selected by the curators, and tactile engagement with the object in question will only occur under their supervision. If it was vision that first drew my attention to the box in the flea market, it was only by handling the box and its different parts that I first became aware of its original purpose. But touch is not only important as a means to make sense of historical objects. Deeper acquaintance with the box reveals that electrotherapy was a profoundly tactile application to the skin, muscles, and nerves. What follows here is a combination of historical enquiry and flea market curating, which is to say that I approach the box per se as an aficionado of things thrown in the dustbin of history rather than as a professional curator. But first of all, let us place our box in a historical context.

TYING TOGETHER HISTORICAL THREADS

The idea that electricity can be employed for medical reasons can be traced back at least to the eighteenth century, a period in which natural philosophers pondered over the affinity between a possible vital principle that distinguished the living organism from non-living entities and electricity. Empirically, the notion that the spark of life was somehow akin to electricity emerged through the comparison between distinct objects and phenomena such as the Leyden jar (a device to store static electricity), electric fishes such as the torpedo fish, the twitch of dead frogs’ legs when stimulated by electricity, and eventually the voltaic pile. An illustrative example of this interest in biological electricity was the study of a torpedo fish that the British colonel John Walsh carried out on the island of Ré, off La Rochelle, in 1772. In a letter to Benjamin Franklin, Walsh gave an account of the electric jolts that the fish emitted and described how the shock could be led through a chain of people whose hands were
lowered in tubs of water (1774: 466). In a similar vein, naturalists such as Geoffroy Saint-Hilaire (1803: 398) and Alexander von Humboldt (1806: 6) also marvelled at the shock of the torpedo fish. Both of them drew extensive parallels between the electric nature of the fish and the discharge of physical devices like the Leyden jar and the voltaic pile. In this hybrid landscape of forces, fluids, organic material, and experimental devices we also encounter medical attempts to apply electricity as a treatment against various kinds of somatic disorders.

If the scientific ideas behind our electrotherapeutic box originated in the eighteenth century, it was only during the following century that electrotherapy established itself as a medical cure. By that time, the belief that organic life emanated from a vital principle had become outdated. Instead, physicians who offered their patients electrotherapeutical treatment drew far-reaching parallels between the energy that resides in the human body and the mechanical forces that powered industrial machines such as the steam engine. According to Carolyn Thomas de la Peña, the rise of electrotherapy as a recognised medical practice coincided with the expansive electrification of modern society in the late nineteenth and early twentieth centuries, a period in which electric street lightning, animated signs, trams, and telephones rapidly transformed the habits of urban life, especially in the US (2003: 99). De la Peña describes how electrotherapy provided a medical counterpart to the electrical machines and devices that altered the townscape of modernity. Through analogical inference, the human body could be compared to a modern machine. Both depended on an intake of substances, nutrition, and fuel in order to convert energy into work. In line with this analogy, electrotherapy offered patients an up-to-date cure. If physical afflictions could be cured with electricity, this meant that the body responded in a positive way to the forces that maintained modern society (de la Peña 2003: 99).

A person who is difficult to overlook when talking about electrotherapy is the American physician George Beard. Together with his colleague Alphonso Rockwell, Beard set up the most renowned electrotherapeutical practice of the late nineteenth century, offering electric currents against various kinds of neural and muscular pains. But Beard was not only a practising physician. In a number of studies, he introduced electrotherapy to a wider public and grouped
the symptoms that many of his patients suffered from under a common label: neurasthenia. Moreover, by linking neurasthenia to the rise of capitalist society with its competitive and stressful lifestyle, Beard helped define the image of nervousness as an illness that exclusively affected modern civilisations (1881: 6). A lack of nerve force being attributed to them, neurasthenic patients were prescribed electrotherapeutic treatment, which was considered to have an invigorating influence on body and mind.

Beard’s practice and writings rendered electrotherapy a fashionable cure. By the 1890s, manufacturers of health-related goods were marketing electrotherapeutic batteries for domestic use. Packaged as a handy and portable technology that came with accompanying manuals, electrotherapeutic equipment was utilised by specialists, unlicensed practitioners, and patients alike (de la Pena 2003: 96). The ease with which battery-powered devices could be purchased, however, made it difficult to distinguish neural specialists from physicians who simply wanted to embellish their practices with the latest trends. In his comprehensive treatise, which he wrote together with Rockwell, Beard raised a warning finger against a too casual approach to electrotherapy: ‘There is danger that now, as of old, the details of the applications will be entrusted too much to the patients themselves, or their friends or servants, or, what is but little better, to physicians who know nothing of electro-therapeutics as a science or as an art’ (Beard and Rockwell 1875: 250).

INVESTIGATING THE BOX AT HOME

Home again after my visit to the flea market, I begin to investigate my box with much curiosity. It is heavier than I first thought – obviously the glass electrodes tricked me into believing that it would be lighter – although its handle enables a steadfast grip and smooth transportation. As we saw above, portable electrotherapeutic kits were available for personal use already in the late nineteenth century. Compared with earlier attempts to apply electricity to the ill body, these devices made the technology less dependent on a particular space or clinic. While we are on the subject of stationary techniques, I cannot help but think of the cumbersome equipment that illustrated George Adams’s exposition on electric medicine from 1785 (FIGURE 37.3).
In the picture we see a doctor applying electric currents to a child seated at the edge of a huge electric apparatus. A hundred years later, and the much smaller apparatus could be moved with very little effort. (It was not only electrotherapy that became portable in this sense. The doctor’s bag is another object that was intended for carrying, a strong symbol of medical practice in the patient’s home). Portable or secured, the history of electrotherapy revolves around one and the same idea: that electricity, whether akin to a vital principle or simply congruous with nerve force, could relieve patients from their incessant pains. This is also something that my box clearly testifies to. It is no coincidence that the electric battery inside the box is labelled Innerva, a name that brings to mind the physiological principle of innervation and its explicit relation to the nervous system, its extension in the body and the connection

FIG. 37.3 George Adams’s prototype; 1785 essay on electricity or a later edition
between nervous stimulus and action. In a broader sense, a battery called *Innerva* also evokes the organic metaphors that were used to conceptualise a new scientific understanding of the body at the turn of the twentieth century. But let us not read too much into the choice of label. Instead let us see what more information can be extracted from the material and tactile qualities of the box itself.

As mentioned above, the box is clothed in embossed black paper. Visually as well as tactually, it resembles saffiano leather. Clearly, the manufacturer wanted to give the box a refined impression without going to too much expense. After all, it was the electrical apparatus and the glass electrodes that were the key components. Therefore, in order to protect the therapeutic devices from damage, the inside of the box was covered with velvet and provided with clips that keep the frail glass pieces in place. This is definitely an important but inconspicuous part of the equipment, and one that emphasises the tactile approach of the electrotherapeutic technique: to press the heated glass electrodes against parts of the body that were sore, tense, and generally fatigued. If the aim of the treatment was to restore muscles and nerves, the means to do this was to reach the hidden organs via the skin. In this sense, electrotherapy was mainly a tactile therapy that stood in close relation to other tactile surface-to-depth techniques such as palpation, percussion, and massage. On closer inspection, this basic fact is an intrinsic feature of the box itself. From the riffled black cover to the soft velvet interior on which the cool glass devices rest, the box literally draws our attention to the texture of its material form. Not unlike jewellery, the glass electrodes lie on the bed of velvet, waiting to be electrically charged and applied to the skin of the patient. Their delicate and transparent appearance forms a strong contrast to the black and solid generator that is placed on the opposite side. It is an enthralling thought that, if the machine still worked, electricity would travel from the generator to the glass electrodes and diffuse the latter with heat. But as it is now the machine is *kaput*. The box contains an obsolete remedy that cannot be made to work, and the transparent electrodes and the opaque generator remain two pieces of technology that can no longer communicate with one another.
CONSULTING THE TRADE CATALOGUES

Tactile examination can yield valuable information concerning the nature of objects and their intended use. Yet when it comes to dating the box from the flea market, my knowledge of materials and the design of health-related devices was insufficient. For all I knew, the electrotherapeutic box could have been manufactured sometime between the late nineteenth century and the 1930s, an all too imprecise date. Therefore, in order to specify the historical period, I ordered a couple of trade catalogues – originally used as advertising brochures for electrotherapeutical kits – from the University Library of Lund and sifted through them in search of historical clues. Eventually, my archival efforts paid off as I found an image of what appeared to be an almost exact copy of my electrotherapeutical equipment, marketed as a ‘high frequency generator “Texal Violette”, the true quality apparatus’ (Trade catalogue 1925). Printed in Östersund, Sweden, the catalogue provides a concise introduction to high frequency electricity and its putative effect on rheumatic disorders, sciatica, gout, insomnia, headaches, nervousness, and alopecia. Claims are also made for the beneficial effect of violet rays on sleep, viability, work capacity, appetite, and digestion, as well as their curative influence on the nervous system (Trade catalogue 1925: 8). High frequency electricity, unlike induction current, produced a barely palpable violet-coloured current that permeated the body down to the cell level. The catalogue also includes a price list of electrodes, accessories, and spare parts that were in stock.

A second catalogue, printed a few years earlier, emphasises the painless procedure of the violet rays. Compared to previous electrotherapeutical techniques that were more or less painful and unpleasant, high frequency electricity was announced as a testament to the scientific progress within the electro-medical field (Trade catalogue 1920: 2). This catalogue proudly states that the portable box has finally made electrotherapy available for everyone (Trade catalogue 1920: 18). Although they are not manuals in the true sense of the word, trade catalogues such as these suggest that the portable violet ray kits were intended for personal use. On closer inspection, the target group seems to have been women. At least one of the catalogues is illustrated with two pictures of women applying glass electrodes to their bodies. The gendered nature of health products
such as the violet ray apparatus is also something that de la Peña discusses in her study. Whereas electrotherapeutical products intended for men alluded to the productive and societal aspects of electricity, articles targeted at women were instead marketed as beauty products that arrested bodily decay (de la Peña 2003: 125). To what extent Swedish products reiterated the gendered notions of the North American market cannot be answered within the framework of this present essay, but there is no reason to believe that things differed all that much in Sweden, even if the catalogues in question, apart from these two images, do not display stereotypical images of gender. What consultation of these catalogues does reveal, however, is that by the 1920s electrotherapy had established itself as a commodity meant for domestic use.

CLOSING REMARKS

Let us now try to define our electrotherapeutic box in more general terms. Regarded as a piece of medical equipment, it was launched at the decline of electrotherapy as a renowned cure, in the 1920s. Technologically standardised and culturally embedded in modern society, it describes the course of the phenomenon of electro-medicine, from a spectacular and experimental agent in the eighteenth century to a theoretically grounded and socially secured procedure in the twentieth century, no longer associated with painful shocks and jolts but recommended nevertheless against a plethora of ailments and maladies. This would be the historical classification. The box carries within it the promise of previous prototypes, countless attempts to channel electricity in an appropriate way, numerous devices applied to the body of the patient and, one might assume, the recurrent twitch when too strong a current was applied. But of course the box per se does not tell us all this, especially since it is out of order. In his writings on media materialism, Wolfgang Ernst distinguishes the cultural life span of a medium from its operational life span (2011: 240). Even if the cultural life span of an object has come to an end, this does not mean that the object has ceased to exist in a functional sense. Technically speaking, the electrotherapeutic box from the flea market could still have been working. Its cultural era has long since disappeared, but, except for its technical demise, its status as an object is unaltered. We can toy with the knob, run our fingers over
the smooth velvet cover, take out the glass electrodes to admire their handicraft, and even try them against our skin. But in the end its mechanism, its electrically embedded *Eigenzeit* – to use Ernst’s term – is dormant. By turning to historical documents, we can evoke the golden era of electrotherapy and place our box in its historical context, but taken for what it is, a broken box that I stumbled over in a flea market, its initial purpose has ceased to work.

Unable to experience the glow of violet rays as they pervade the glass electrodes, we are left with the box itself and its material evidence. A classification derived from its inert parts will once again underscore its portable design, its riffled and smooth texture, the tranquil isolation of the transparent glass devices and opaque generator as they remain out of contact from each other, and last but not least, its morphological structure in which the different glass electrodes, through their very form, indicate that this is a machine intended for the human body and its different folds: one electrode is shaped as a comb, another one is designed for the ears, a third one for the rectum, and so on. In the absence of its electrical function, we must turn to these immediate attributes in order to establish an overarching principle for this broken machine within a whole box. As mentioned above, electrotherapy can be described as a surface-to-depth technique that treats the body in a physical, tactile way. It does not deal with the body in a representative manner, but directs its entire energy towards the body as flesh. This non-representative tactic distinguishes electrotherapy from other medical surface-to-depth techniques such as x-rays, which redirect our focus from the flesh of the body to the image on the screen.

Electrotherapy is all about skin and flesh. It is an instrument or a medium that makes use of the skin to massage the flesh with electricity. Notwithstanding its electric function, it is essentially a tactile technique. As a matter of fact, had the box functioned properly, the sight of violet rays emerging in the void of the glass electrodes would most likely have affected my overall impression in favour of a more visually oriented account. But strictly speaking, what kind of touch is mediated through the electrotherapeutic technique, and where in the body does it make itself known? Aristotle once remarked that the sense of touch tends to evade us since it lacks a clear organ, in contrast to the other senses which reside in more defined parts of the body. Is the sense organ of touch situated in the flesh or is the flesh only a medium that mediates sensation to a primary internal
organ (Aristotle 1907: 97)? Applied to the electrotherapeutic box, we could ask with Aristotle whether the main target for the current was muscles, nerves, cells, or even a more profound organ whose fluids permeated the flesh with life. Depending on where in history we choose to look, we will run up against different answers. Skin, flesh, or imponderable force, our box comes to a halt here.

NOTES

1 For a thorough account of the debates on animal electricity between Luigi Galvani and Alessandro Volta see Pera 1992.
2 See, for instance, the British optician and instrument maker George Adams’s essay on electricity, which included a special section on electrotherapy; Adams 1785.
3 Two studies that unfold this topic vividly are Killen (2006) and Otis (2001).

REFERENCES

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**Fig. 38.1** Reliquary with scenes from the martyrdom of St Thomas Becket, c.1173–1180; British; silver, partial gilt, niello, garnet cabochon; 5.5 x 7 x 4.7 cm (source: Metropolitan Museum of Art: Accession no. 17.190.520; gift of J. Pierpont Morgan, 1917; image provided by the Metropolitan Museum of Art courtesy of Open Access for Scholarly Content)