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Shocking Grasps: An Archaeology of Electrotactile Game Mechanics

by David Parisi

Abstract

In this archaeological analysis of gamic electroshock, I link recent electric shock game machines such as *PainStation* and *Tekken Torture* to prior ludic and therapeutic deployments of electric shock, with the intention of disrupting the conventional and taken-for-granted associations between electric shock and violence. Beginning with the 'electric kiss' game popular in Europe and America during the eighteenth and nineteenth centuries, I chart the changing status assigned to sensations of electric shock as it was mobilized by different machines in varying social and cultural contexts. By focusing in particular on the many 'shocker' machines that littered arcades beginning in 1886 (such as *Electricity is Life* and *Spear the Dragon*), I show how shock was deployed simultaneously as a game mechanic and as a means of curatively charging the body's depleted vital forces. Following Erkki Huhtamo's suggestion that we read game machines as part of a broader history of human-machine relationships, I position arcade shockers as a response to the nervous fatigue brought about by existence in the sensory chaos of early twentieth century urban environments. Shock indexed machine-generated electricity's capacity to rejuvenate exhausted nerves, indicating the ease with which energy could be transferred from batteries to bodies. Shock sensations, I argue, were not accidental byproducts of these transfers, but instead signifiers of their success.

Though employing a similar mechanic of passing electricity through the gamer's body, *PainStation* and *Tekken Torture* celebrate the resulting shock for its capacity to inflict a distracting pain on the player. Where prior game machines situated shock as a curative, these "games of pain" (Laso, 2007) conjure cultural memories of electroshock torture, electroconvulsive therapy and fatal electrocution; by doing so, contemporary electroshock games naturalize a set of historically-contingent associations between electricity, pain, and bodily vulnerability.

I conclude by suggesting that Game Studies has, in general, overlooked touch's primacy in constructing gamic experience; building on Huhtamo, I offer the concept of haptic *topoi* as a way to think productively about the embodied sensations produced through interactions with game machines.

Keywords: Game history, electricity, tactility, shock, haptics, game mechanics, media archaeology, rumble feedback, vibration

Introduction: Toward a Gamic Electrotactility

In the 1740s, nearly a half-century after the invention of the first electrostatic generator, the imaginative poet/electrician Georg Matthias Bose began using this novel machine to amuse and entertain

elite partygoers. One of Bose's most popular and often-repeated demonstrations involved spinning the generator to charge a woman insulated by her position on top of a wax pedestal. Once she had been sufficiently charged by the generator, which was often concealed from the view of the party's attendees, a male would be invited to attempt to plant a kiss upon her lips. As the suitor moved in for the kiss, a powerful spark would jump from her lips to his, bringing with it a painful shock that served to dissuade the male participant from making contact with the female (Heilbron, 1979, p. 267). In the 1880s, nearly 150 years after Bose first tricked unsuspecting, lustful men into subjecting themselves to the experience of electric shock, the enterprising designers of coin-operated arcade machines began incorporating shock-dispensing electric batteries into their ornate cabinets with the intent of both healing and amusing their customers. These shock machines enjoyed a surging popularity across Europe and in the US until the 1930s, subsequently surviving only as curiosities for collectors and hobbyists. A pair of art installations resurrected electric shock as a game mechanic in the first years of the new millennium; *Tekken Torture* and *PainStation* each pitted players against one another, employing shock as a means of inflicting a disruptive pain on players as a consequence of negative game outcomes.

My primary aim in archaeologically linking together these various gamic encounters with electrotactile shock is not to highlight their similarities, but rather, to show how the shifting cultural status of electricity changed the way game machines (and their designers) employed shock. I want to push beyond 'the shock of the old' often conjured by electroshock machines, where our contemporary image of the body's relationship to electricity, informed by practices such as Electroconvulsive Therapy (ECT), electroshock torture, and the use of electrify in state-sponsored executions, is projected back onto the history of medical and popular encounters between bodies and electrical machines. Confronted by a past where shock encounters were routinized, therapeutic, and frequently pleasurable, we sometimes recoil in a sort of condescending horror at the perceived barbarity of prior technological milieus. As I show through a brief but close reading of texts that prescribed the uses of medical electricity, sensations of electrical shock were not external and accidental byproducts of medical electricity, but rather, intentionally and carefully produced during treatment sessions in order to indicate and evidence medical electricity's efficacy. I want to suggest that the success of electrotherapy, and subsequently, of electroshock arcade games, hinged on the capacity to describe, modulate and mechanically reproduce electrocutaneous sensations. Keeping such sensations within the bounds of tolerability, while not diminishing them so much that they became imperceptible, was part of the bodily technics required for electrotherapy's success. Electrotherapists and, later, electroshock cabinet manufacturers sought a sort of 'golden mean' between electricity's sensate absence and its overwhelming, inescapable sensory abundance.

The argument I offer here builds on and extends the archaeology of arcade gaming Erkki Huhtamo initiated in "Slots of Fun, Slots of Trouble," where he grounded the later emergence of electronic games in the coin-operated machines popular during the late nineteenth and early twentieth centuries. Huhtamo's positioning is decidedly disruptive, aimed simultaneously at countering the inflationary claims made by those he derisively labels video game "cryptohistorians" (Huhtamo, 2005, p. 15) and at moving beyond the "chronicle era" of game history, which privileges "amassing and organizing data" as end unto itself (Huhtamo, 2005, p. 15) [1]. The cryptohistorians—industry publicists with a vested interest in trumpeting the revolutionary character of their products—"represent electronic gaming as something unprecedented, a unique phenomenon heralding an

imminent transition into a culture of interactivity" (Huhtamo, 2005, p.15). While Huhtamo grants a degree of validity to their claims, he insists on using a media-archeological method that displaces narratives of technological novelty and innovation in favor of an emphasis on articulated cultural responses to and practices around media technologies. This archaeological approach, owing a debt to studies of cultural responses to the introduction of new technologies (Marvin, 1990; Rabinbach, 1990; Schivelbusch, 1986), stresses the "cyclical rather than chronological" character of technological development, and "recurrence rather than unique innovation" (Huhtamo, 1997, p. 223). As a consequence of this reframing, the interactivity cryptohistorians fetishize as unprecedented becomes instead part of a broader cultural problematic central to the lineage of human-machine interactions.

The slot machines and coin-ops encountered in the recreational spaces of arcades must therefore be understood in relation to other contemporaneous human-machine interactions. Urban dwellers, who labored by affixing themselves to machines in offices and factories, attached themselves during their non-working time to a different type of interactive machine, one that pretended to leave behind the productivist imperative of workplace machines. Although slot machines and coin-ops provided what Huhtamo describes as a type of therapeutic recreation, they failed to release the worker from the dictates of "machine logic," and instead "initiated a psycho-technical feedback loop that linked the working life and spare time even more tightly together" (Huhtamo, 2005, p. 11). However, consistent with other arcade histories, Huhtamo's treatment of electric shock machines groups them under the larger umbrella category of "strength tester" machines (including games where players swung hammers, punched bags, or blew into tubes to spectacularly display their power). This grouping obscures discontinuities between shock cabinets and other strength and endurance testers, while simultaneously recessing the lineage of electrical shock as a particular type of human-machine interaction. By carving out electrotactility as a specific type of relationship between both humans and other humans and between humans and machines, I want to show how touch was used as a means of inscribing narratives onto the bodies of machinic subjects, both in gamic and nongamic contexts.

A Primordial (electro) Tactility

The quick popularity Bose's *venus electricata* (see Figure 1) found in Europe and colonial America, enabled in part by refinements in the design and manufacture of electrostatic generators throughout the eighteenth century (Delbourgo, 2006, p. 112), illustrates the playful relationship subjects had with the new force and the curious sensations it produced. By moving into the parlor, these electrical machines became leisure technologies brought into the home with the aim of simultaneously enlightening and entertaining their users [2]. Arthur Elsenaar and Remko Scha highlight the aesthetic dimension of the electric kiss demonstration, describing it as a type of "immediate art" aimed not at "the perception of an external object through the senses," but rather, at the direct stimulation of "the end-user's afferent nerves" by electrical current (2002, p. 19). This formulation of electric shock as something that acted on the body's interior, I would like to suggest, does not account for the materiality attributed to the shock encounter; shocks were not understood as changes in the body's internal state, but instead, likened to the visible (sparks) and audible (cracks) indicators of electricity's presence. Electric shocks mobilized both an epistemology and an aesthetics grounded in touch.



Figure 1: An 1800 reproduction of Bose's electrified venus. Image from Wikimedia Commons.

Though I do not reject outright Elsenaar and Scha's the categorization of the electric kiss as an artwork, I would like to push a reading that emphasizes its gamic dimensions. While science historiographers casually refer to the kiss and other affiliated shock tricks as 'games,' they fail to consider the formal structures that governed these play experiences. With the electric kiss, the male participant had a defined objective (kiss the woman), conditions of success (make contact with the female's lips), and conditions of failure (not making contact with the female's lips, due to the shock of the charge jumping from her mouth to his upon his approach). The conditions of victory were reversed for the electrician and his female partner; the female served as a sort of avatar for the electrician, merging with his machine to form an electrified obstacle that the male participant sought to overcome. Particularly with early iterations of the electrostatic generator, producing and containing an electrical charge required a practiced and dexterous skill on the part of the electrician; the kiss provided an opportunity for him to spectacularly display his mastery over this unwieldy force. For the electrified venus, her ability to repel the suitor indexed not only her capacity to store what was then known as the 'electrical fire,' but also served to indicate the painful passion she could unleash (enabled, of course, by the male electrician) upon intrepid suitors [3]. Bose went so far as to advise any man "scandalized" by the electric kiss to cast himself into the ocean (Heilbron, 1979, p. 267).

Considered from this perceptive, the electric kiss becomes not only the first electric *shock* game, but the first *electric* game, suggesting that the logic of electric gaming was organized at this inceptive moment around the production of tactile effects, rather than their visual or aural counterparts. As a form of popular and spectacular entertainment, the kiss often served as the literal point of first contact between eighteenth century bodies and artificially-generated electricity. Such a positioning emphasizes both the playfulness and sociability of early empirical encounters with electricity, as the successful execution of the electric kiss depended on establishing a hybrid relationship between human participants and the electrostatic machine. The operator, often concealed from both the audience's and the male player's view, provided human power for the generator, while the passive female participant served simultaneously as a battery for the electrical charge and as a lure for potential male players. Though electrical contacts required the use of a deftly-operated machine to charge the female participant, the human-machine relationship remained primarily a relationship between humans and humans; the machine only attained expression by communicating its energy through a human medium. In Huhtamo's

genealogy, automatic machines, capable of performing independent of human interaction, preceded the later emergence of the interactive machines encountered in arcades. Such a trajectory does not map neatly onto electric shock apparatuses, as the latter required the spectator's active intervention in order to produce the desired shock effect.

The Technics of Electrotherapeutics

For over a century after the invention of the electrostatic generator, artificially-produced electricity proved to be of very little practical use; as an object of curiosity and wonderment spectacularly displayed for anxious audiences, it promised more than it delivered. The exception to this rule was in the area of medicine—particularly after the invention of the Leyden jar in 1744, electricity came to be seen as a means of treating all manner of illnesses and ailments (for a summary, see Bertucci, 2007). Bodies were electrified; sparks were drawn from them by the skilled hands of electrotherapists. Treatments were often painful, and their efficacy existed in a state of persistent doubt and contestation. The patient's embodied experience of electric therapy gradually became a central concern both in the design of treatment procedures and in the configuration of electrotherapeutic apparatuses.

Patients' sensitivities to electrical charges presented a conundrum: treatments that resulted in an excess of sensation suggested that the body risked being damaged rather than healed by the application of electricity, while treatments where electricity existed beneath the patient's perceptual register were often thought to be ineffectual. Current needed to be felt in order to be believed, but this feeling had to be constrained within tolerable parameters. In his 1784 *Essay on Electricity*, George Adams framed the sensations produced by different electric therapies as distinct "species of shock" (1784, p. 324). One treatment brought with it "a mild and pleasing" sensation "resembling the soft breezes of a gentle wind; generating a genial warmth" (1784, p. 324). Later formulations employed a similar tactile taxonomy; Celia Haynes in her 1884 work *Elementary Principles of Electrotherapeutics*, named the different methods of skin faradization for the sensations that accompanied them: "the electric nail," for example, "produces a sensation like a red-hot nail pressing into the flesh;" "electric cauterization," where an electrified wire brush that moves across the skin, "produces a sharp, burning sensation, that has been compared to that caused by a cautery" (1887, pp. 214-215).

Electrophysicians, then, were tasked with carefully modulating the currents they applied to patients; they attempted to minimize discomfort while administering enough charge to ensure the treatment's (perceived) efficacy. Their training entailed subjecting their own bodies to repeated shocks, so that they could anticipate the sensations patients would experience during therapeutic sessions. Physicians (or "operators," as they were often called) were urged to augment or diminish the "force of the shock" based on "the strength and sensibility of the patient" (Haynes, 1887, p. 276). They regulated the dose of electricity, "like that of a drug" according to the "age, race and habits of the patient under treatment" (Haynes, 1887, p. 276). Electrotherapy assembled patient, physician, and electrical machine in a circuit of mutual legibility: the patient felt and articulated the shock sensation; the physician, often serving as a conduit through which electricity passed, regulated the passage of shock into the patient's body by dexterously manipulating the unwieldy electrical mechanism; and the machine encountered what was termed the "resistance of the body," as different patients and their different body parts provided variations in electrical conductivity, slowing and impeding current as it flowed from the machine, through the physician-patient amalgam, and back into the machine. Patients' experiences with electrotherapy were governed by the therapist's often imprecise judgments about

how to most effectively administer the current—the therapist determined, often haphazardly, the current's intensity, the duration of its application, and which body part was best suited to receiving it.

Take a Shock and Look Pleasant

The emergence of arcade electricity in 1886 fractured the stability of this arrangement; by removing the physician from the circuit, coin-operated electrotherapy collapsed the role of operator onto the patient. Machines like the *Volta Electric Automaton* (circa 1920; see Costa, 1968, p. 151) and the *Electric Sailor* (circa 1910) promised operators the ability to regulate the dispensed currents "at will" (Costa, 1988, p.144), and by doing so, suggested that the human physician had become superfluous to the treatment process. In addition to being "good for the nervous system" more generally, the *Silent Physician* (Mills Novelty Company, C. 1904) could treat "all forms of muscular ills" without the intervention of a human electrotherapist. The Peterson Medical Electro Battery (c. 1904) claimed to "strengthen your nerve by a mild invigorating electrical treatment" while asking "how much you can stand," daring the operator/patient to deliver the maximum intensity of shock in the treatment.

The typical shock machine, adorned with the common slogan "electricity is life" [4], featured metal handles that could be grasped and turned to adjust the strength of the current that passed into the operator, along with a numeric dial display to visibly indicate and quantify the intensity of the shock experience. Machines frequently signaled the player's feat of enduring the maximal currents by loudly ringing a bell. An 1886 machine went so far as to dispense a card indicating the voltage that the patient had subjected him or herself to (Costa, 1988, p. 147), providing a transcription of the shock experience. Although they frequently acknowledge the medical lineage of these machines, arcade historians have tended to lump shockers together under the general category of strength and endurance testers, where shock machines were games that urged players to show off their capacity to withstand the still-novel force of electricity. In this interpretation, underpinned by assumptions about the gendering of technological mastery, these devices acquire a decidedly masculine connotation, as enduring the discomforts shock machines subjected the body to spectacularly signified, in the public space of the arcade, an agonistic triumph over the electrical machine and the forces it generated.

While such readings are certainly justified, they distract from the sincere hopes metropolitan residents placed in medical electricity: the force provided both a means of alleviating the urban body's sufferings, and technique for restoring the vital energies drained by city life. The popular *Imperial Shocker* (Figure 2), inlaid with a photograph of a smiling young woman framed on both sides by a pair of ornate cast iron female figures, implored operators to "take a shock and look pleasant." The *Imperial Shocker* linked cabinet electricity to regimes of beautification and a more general therapeutic ethos that fueled the emerging consumer culture, offering "electric treatment great for one-night jags" to anyone who could slide a coin into the machine's slot. No longer confined to the physician's office, these machines opened up the distinctly modern benefits of electrotherapy to new populations by simply lowering the price of admission.



Figure 2: *Imperial Shocker*, c. 1902.

Further, arcade electricity narrowed the locus of medical electricity to the hands, a reflection of the neurasthenic paradigm's claim that the body's depleted nerve energies needed to be recharged through a general injection of electricity into the body. This paradigm displaced earlier beliefs about the benefits of running current through specific locations on the body; prior therapeutic practice prompted medical instrument manufacturers to craft electrodes that could penetrate deep crevices of the body (see Figure 3 for examples). Physicians used these intruding metal probes and wet sponges to pass current into every body part imaginable, including the uterus, rectum, tonsils, and eyes (Haynes, 1887, p. 383, 371, 314, 286). Arcade cabinets replaced such disagreeable instruments with a gentler mechanism, one that conceptualized the hands as positive and negative poles in a human battery that benefitted from constant recharging. From this perspective, early iterations of coin-operated shock machines seem quite un-gamelike: they functioned more as vending machines, dispensing a customizable amount of curative current for a fixed price. Such a positioning brings their explicitly utilitarian function to the surface; as machines designed to restore energies depleted by the sensory chaos that defined modern metropolitan life, these therapeutic cabinets helped to ensure that bodies would remain sufficiently healthful and energized.



Figure 3: Four electrodes, designed for applying electricity to different body parts. Haynes 1887.

Highlighting their non-gamic function as shock dispensers, then, situates these machines centrally in the economy of nerve forces that organized mental experience in modern metropolises. In Georg Simmel's account of turn-of-the-century urban life, he described a triangulation between nerve energy, money, and the senses—dulled by the constant demands urban experience placed on them, the senses became incapable of registering the differences between things (2002, p. 14). The urban dweller came to gradually possess a "blasé attitude" as a consequence of sensory overstimulation and nervous exhaustion. Unable to rely on their senses to evaluate the qualitative differences between things, these urban dwellers fell back on money as type of sensory surrogate, what Simmel called a "frightful leveler" (2002, p. 14) that allowed difference to be formulated as an abstracted, mathematical quantity, rather than something individuals sensed and judged on a case-by-case basis. Money worked as a technology that compensated for the effects of metropolitan life on the senses by offloading labor the depleted senses were no longer able to perform onto an exteriorized, disembodied valuation mechanism; the nerves, drained of their vital forces, could fall back on money as an extracorporeal reserve. Electric energizers facilitated the translation of one reserve force into another: by placing a coin in the slot, the spent nerves could be replenished, and urban dwellers could once again rely on their own senses to register differences and distinguish between stimuli. An embodied and therapeutic electrotactile shock, quite distinct from the "traumatocentric" [5] concepts of shock described by cultural historians like Wolfgang Schivelbusch and Tim Armstrong, thus proved essential to registering and evidencing the transfer of energy from machine to human.

Gamifying Electrotherapy

While several cabinets, particularly in the early years of automated shock machines, were designed solely to dispense shock, most machines fused the therapeutic administration of shock with a game mechanic, aiming simultaneously at a healthful rejuvenation and at creating a compelling interactive experience that encouraged players to pump more coins into these curious cabinets. The two functions were complimentary rather than competing; even if a player/operator failed to withstand the most intense charge the machine had to offer, they could still walk away with the curative electrical tingle lingering in their arms serving to indicate that their coin had been well-spent. Of the many machines that merged these functions, Exhibit Supply Company's *Spear the Dragon* (c. 1927) stands out both for the relative richness of its narrative and for its celebration of the game experience as a means of charging the body [6].



Figure 4: *Spear the Dragon* (1927) required the player to hold metal handles and withstand gradually-increasing shocks as the avatar moved toward the fire-breathing dragon.

Even as the popularity of medical electricity and electric shock cabinets began to wane (the “Golden Age” of electrotherapy is generally described as lasting from 1880 to 1920; see Peña 2003, p. 99), *Spear* framed the administration of current as both an “electric energizer” and as a game that tested the player/patient’s nerve. *Spear*’s cabinet showed flames emanating from the dragon’s mouth; the electrical current applied to the player as the avatar moved toward the dragon became a tactile signifier of the dragon’s fire, a translation that summoned the earlier theory that electricity was a type of fire-like fluid communicated between bodies. By 1926, this theory had long since been displaced, but it was initially informed by the feeling electricity induced as it passed through the skin—though the sensation was often likened to burning (as in the above-cited electric cautery), this burning was induced without visible evidence of fire. In *Spear*, electric shock became a means of immersing the player in the game world through the combination of tactile, visual, and aural signifiers; the strengthening current passing into the player’s arms simultaneously signified the beast’s flames singeing the avatar’s body *and* the flow of vital energy into the human battery. The successful player could withstand this shock long enough for the spear to come into contact with the dragon, at which point their vanquishing of the

dragon was spectacularly rewarded by a loudly-ringing bell. Along with similar machines like *Le Derigable* ('The Airship'; Jentzsch and Meerz, C. 1929) and *Motor-Car Game (with electric shock)* (Presser, Moody, Wraith, & Gurr, C. 1924) [7], *Spear* succeeded in enclosing the application of medical electricity within an audiovisualtactile narrative framework that valorized the ability to withstand the painful but beneficial shocks issued by the arcade machine. These game mechanics, where players were rewarded for withstanding a maximal amount of current, embodied "the popular idea...that 'if a little electricity is good, more must be better'" (Haynes, 1878, p. 417).

Such machines positioned electric shock, and the cultivated capacity to endure it, as a means of commercialization—the electric shocks issued by cabinets' finely-crafted handles energized not just bodies, but local arcade economies, as shock machines promised revive both to revive the bodies that encountered them and to invigorate the commercial spaces into which they were inserted. As indicated by a 1910 advertisement for the Electric Sailor shock machine claim to "Electrify you by the Profits I make" (Costa 1998, 144), electrification referred simultaneously to the literal charging of the body, and, more generally, to a metaphorical infusion of exciting energies into social and commercial life.

Therapeutic Vibrations

In response to the therapeutic but uncomfortable shocks dispensed electrical cabinets, the Watling Manufacturing Company's three-armed *Vibratory Doctor* (c. 1904; see Figure 5) promised to both relieve specific ailments (such as a stiff neck or aching back) and more generally to charge and replenish the body's vital forces through the application of vibrations to the patient. The *Doctor's* vibrations, which patients self-administered by pressing the rubber hand protruding from the middle of the cabinet against their bodies, offered to "put new life" into his patients. *Doctor* responded explicitly to the discomforts of medical electricity, hailing customer/patients by differentiating his treatment from that of the shock dispensers—the text on the cabinet beckoned passersby with the tag "not electric it is pleasant." Where shock machines boldly asserted "electricity is life," *Doctor* answered back with the declaration "vibration is the law of life," a claim that located *Doctor's* therapeutic mechanism as a regulatory biological force. *Doctor* introduced an additional layer of mediation to the process of energy transference; instead of passing electricity directly into the body, *Doctor* transformed electrical power into vibrations rhetorically positioned as possessing a rejuvenating capacity similar to that of inductive shocks.



Figure 5: Walting Manufacturing Company's *Vibratory Doctor*, c. 1904.

Read in relationship to the machines that both preceded and existed alongside it, the transubstantiation *Doctor* carried out indicates a changing relationship between electricity and touch, one where the direct transference of electricity to the skin came to be gradually displaced by vibrations that emanated from an electrically-powered

motor. Contemporaneously, the same technology was operating in the electric vibrators physicians used to induce hysterical paroxysm in female patients, as Rachel Maines describes in *The Technology of the Orgasm* (1998). Originally steam powered, the vibrator developed as a labor-saving medical technology to hasten and ease the chores of male physicians charged with manually stimulating their female patients. In its electric iteration, the vibrator proved a wieldier device, able to be more easily modulated and controlled. However, battery-powered devices were still cumbersome, and eventually, with the increasing electrification of the home, vibrators managed to migrate out of the physician's office and into domestic spaces, where their manipulation moved from the physician's hands into the hands of former patients. An example of what Maines calls "socially camouflaged technologies" (1998, pp. 18-20), vibrators were marketed openly, with advertisements for the gadgets appearing frequently in popular periodicals. One vibrator ad from 1910, seeming to paraphrase the claim on *Doctor's* cabinet, declared "vibration is life" (Maines, 1998, p. 106). It is not by the prurient interpretation of the contemporary reader that the *Doctor* acquires a sexualized connotation; with a long, vibrating, phallic arm extended from his naked body, *Doctor* participated in establishing a connection between recreational machines, sexuality, vibration, and electricity. These linkages reverberate in more recent game interfaces, such as the appropriation of *Rez's* trance vibrator peripheral as a genital massager, user mods that transform the X-box controller's rumble motors into mechanisms for modulating the speed of crudely-sutured vibrators, and the merging of the Novint Falcon haptic feedback controller with a variety of sex toys.

Recapitulating Electroshock

With the waning of electrotherapy's popularity and growing fears about electricity's capacity to injure the body, manufacturers gradually stopped producing electric shock games. The cabinets that still lingered in arcades became markers not of modernity but of history, curiosities from a bygone era. *The New Addams Family Electric Shock Machine* (Nova Productions, 1999; see Figure 6) deployed several signifiers to suggest its continuity with earlier shock cabinets: first, the two metal handles grasped tightly by the player recalled the configuration of earlier electric shock games like *Spear*; second, the game experience was advertised by the text on the machine's cabinet as "electrifying;" third, the player selected the level of 'power' that would be administered; fourth, the sound of electrical sparks emanated from the cabinet's speakers; and finally, recalling one of the first electric shock arcade machines from the nineteenth century, the machine even printed out a record of the current the player was able to withstand during their game session. Curiously, however, *Addams Family* substituted a high-frequency, variable-intensity vibration in place of actual electric shocks. Using an "electric shock simulator" mechanism (Jones, 1998), *Addams Family* executed a clever sleight-of-hand, tricking the player into thinking that the numbing sensations caused by the cabinet's rapidly-vibrating handles were actually induced by electricity entering the body. A year later, Nova employed similar mechanisms in *Star Trek: Borg Contact* (2000), which, with its two sets of handles, pitted two players against one another to see who could withstand the highest intensity of (purported) electric shocks.



Figure 6: *The New Addams Family Electric Shock Machine* (Nova Productions, 1999).

This harkening back to the history of electric shock machines was not accidental; in his patent for the shock simulator mechanism, inventor David Jones referenced not only the popularity of the earlier cabinets, but also grounded the value of his invention in the shifting status of electric shock, noting that machines that directly shock the body “are no longer acceptable on the basis of health and safety” (1998, p. 2). Like *Spear*, where electric shock served as a signifier for fire, the Nova Productions’ games utilized a method of haptic signification, with vibration becoming a necessary stand-in for the “unacceptable” sensation of electrical shock. However, in contrast to *Spear*, *Addams Family* attempted to conceal the signification process; the cabinet’s visual adornments did nothing to indicate that the sensations originated in anything but electricity. The success of this trick hinged on electric shock’s persistent novelty; given the rarity of direct tactile encounters with electricity, the simulation was able to hide its status as such. *Addams Family* mobilized and attempted to commodify the dangers of electric shock, while using the substitution mechanism as a way to insulate the body from the very real dangers electrical current exposes it to.

By concealing rather than celebrating the vibrations at the core of the machinic encounter, *Addams Family* and *Borg Contact* also broke with *Doctor’s* organizing logic. While *Doctor* used vibrations to mark itself off from machines that employed electric shock as a curative, it nevertheless explicitly acknowledged and celebrated the capacity of arcade machines to heal and vitalize the body. *Addams Family* and *Borg Contact* instead highlighted the direct threat electrical machines pose to human bodies, as represented by the tactile figure of vibrating handles. The narrative framing of the shocks issued by the latter two games conjures the machine’s capacity to annihilate life; in the case of *Borg Contact*, bodily contact with a race of alien cyborgs threatens to remove all trace of humanity, and in the case of *Addams Family Electric Shock Machine*, the narrative positioning of the player in an electric chair indicates the power electricity came to occupy over human life during the twentieth century [8]. Only a year after Jones patented his electric shock simulator mechanism, Sony similarly incorporated the rhetoric of shock in naming its new rumble-enabled controller the “DualShock.” Though ‘shock’ in the name “DualShock” did not explicitly refer to electric shock (as with the Nova Productions’ cabinets), since the controller’s release, many games have used vibrations to signify and stand in for electric shocks administered to the players avatar. At a more general level, the DualShock, and the similar rumble technology later employed in Microsoft’s Xbox controller, exponentially multiplied the range of associations game designers could graft onto machine-generated vibrations [9].

Electropain as a Game Mechanic

The game artworks *PainStation* (//////////fur//// 2001-2003; see Figure 7) and *Tekken Torture* (C-Level 2001) each integrate electric shock into their game mechanics with the intent of spectacularizing the player’s capacity to endure machine-administered shocks. Scholarly treatments of these games link them together based on their shared use of pain infliction as a means of directing focus onto the corporeality of ludic experience; to use Pau Waelder Laso’s phrasing, *PainStation* and *Tekken Torture* can be understood as “games of pain” (2007, p. 239). Both employ electric shock to illustrate the power of machines to inflict suffering on the body, and use pain effects to help inhibit the successful completion of game objectives. As Laso points out, this ludic pain attains “a specific function and meaning, both as threat and disturbing stimulus that generates an intense physical and psychological response” (2007, p. 241). Experienced as “bracing” and painful sensations, electric shock game events summon attention away from the exterior world of the game, back to the player’s body. A brief examination of the process

by which these games utilize shock will bring their differences into relief.



Figure 7: *The PainStation* (//////////fur////, 2001).

In *PainStation*, a modified version of Pong, the game machine delivers painful sensations to the player's left hand via the Pain-Execution-Unit (PEU) as punishments for negative game outcomes. The PainStation uses three different mechanisms to induce varying sensations and intensities of pain—electric shock, heat, and a whip. As with earlier arcade cabinets, the machine's capacity to provide tactile feedback to the player depends on points of physical contact to close the body-machine circuit. The game ends when one player interrupts the circuit by removing their hand from the PEU. Unlike the earlier arcade machines, which required players to be shocked in order to drive the unfolding of the game's narrative, shocks are only inflicted as punishments for negative game outcomes, rather than being a condition of the play experience.

C-Level's *Tekken Torture*, a modified version of the popular fighting game *Tekken 3*, transmutes the normal rumble feedback of *Tekken 3* into electrical current applied to the player's right arm, resulting in a somewhat debilitating shock that interrupts the player's ability to dexterously manipulate the controller. When the player's onscreen avatar is struck by the enemy, the electrodes on the player's arm pass a painful current into the body, simulating the impact felt by the avatar's virtual body. Moreso than *PainStation*, *Tekken Torture* highlights and celebrates electricity's capacity to not only inflict pain, but also to temporarily seize control over the body's motor functions.

In his analysis of these artworks, Patrick Crogan describes them as a means of reflecting on electronic gaming's position with a broader technocultural genesis, claiming that both the "design of the modified Playstations and the staging of the game event tournaments incites participants to think about gameplay and game consoles and their historical relation to warfare and the history of computing" (2011, p. 141). While I do not necessarily contest this interpretation, Crogan's

focus on the militaristic, computational, and cybernetic associations conjured by the works obscures the historicity of electric shock in gaming [10]. The alternative reading I provide here, where *PainStation* and *Tekken Torture* recall instead a predigital storehouse of associations, indexes the shifting set of meanings affixed to the stable corporeal sensation of machine-generated electric shock. One hundred years earlier, the bodies that endured electric shocks did so with the hope that these shocks would energize, replenish, and cure. Now, subjecting bodies to ludic shocks reminds us of electricity's capacity to damage, injure, and even kill. However intractable this contemporary association between electricity and fear may appear, it is crucial that we recognize the fundamental malleability of this relationship. From this perspective, games of electropain serve a regressive function, celebrating rather than challenging the culturally- and historically-derived link between shock and regimes of violence.

These games of electropain, then, naturalize the link between a material tactile signifier and a cultural signified; the rhetorical positioning of *PainStation* and *Tekken Torture* celebrates, rather than distracts from, the electric machine's capacity to inflict pain. Whereas coin-op electrotherapy machines masked the painful and unpleasant effects of acquiring curative currents, games of electropain are calibrated specifically with the intention of inflicting pain—however carefully-constrained by the apparatus—on their players. *PainStation* and *Tekken Torture* are marked by an accumulation of force and its release upon a body whose vulnerability is highlighted, rather than obscured and ameliorated, by the game interface. Particularly in light of electroshock's spectacular appropriation as both a torture technology (Rejali, 2001) and as a means of state-sanctioned execution (Metzger, 1996), it is essential that we recall the possibility that its meaning could be and once was otherwise, if only to remind us that regimes of haptic signification are necessarily transient and historically contingent.

Further, though games of electropain may threaten to injure the body, they do so bounded by a logic of what Laso describes as "haptic simulation" (2007, p. 239) that inscribes the player's safety in the mechanism used to produce ludic shocks. The structuring frame for *PainStation* and *Tekken Torture* is not one of digital computation, as Crogan suggests, but of a calculation and calibration of electric shocks administered by machines to an electrosensitive body. As with the electrotherapeutic machines described above, these games mobilize a technics of the body in their strategic modulation of the machine's capacity to inflict harm on the player. Particularly with *Tekken Torture*, the interface does not seek a faithful haptic simulation of the avatar's virtual corporeality, but rather, one that translates the avatar's haptic system into a single space on the player's body. Pain becomes fun and amusing, experienced aesthetically rather than instrumentally, only within the controlled environment of the game apparatus. The apparatus provides a crucial guarantee that pain will be constrained within safe parameters, thus ensuring that electrically-induced pain will only hint at, but not achieve, bodily harm.

Conclusion: Historicizing Electrotactility

Over two hundred and fifty years after Bose began shocking unsuspecting partygoers, the sensation of electricity entering the body recurs as an object of curiosity and fascination. In spite of this lineage, recreational electric shock machines are consistently characterized as novelty devices. Inexpensive party games like *Lightning Reaction: Reloaded* and *Electric Shock Lie Detector* continue to amuse and fascinate. But novelty implies both a denigration and valorization, suggesting that the novelty object has no inherent or stable value, something to be discarded and forgotten once the feeling of newness it inspired has faded into the cultural past.



Figure 8: A marketing image of the shock game *Lightning Reaction: Reloaded*. In the four-player game, participants compete to see who can be the fastest to press the button on top of the handle. The first player to do so is spared the shock, while it is inflicted on the other three.

However, this examination of ludic electric shock shows how shocking grasps, because of their perpetually-reenergized novelty, provide access to what we can understand, following Huhtamo (1997, p. 222), as a type of haptic *topoi*—sensations whose recurrence in media history indicate a cultural fascination with a particular type of machinic sense experience. The shocking grasp, in its curative, ludic, sexual, and punitive orientations, evokes an array of feelings, including not only novelty, but also wonder, danger, barbarity and hope. The shocking grasp opens a fissure to electricity's variegated and transient cultural life [12].

In Schivelbusch's analysis of cultural responses to the experience of railway travel, he postulates a continual adjustment to the new perceptual experiences that accompany technological change: "the process by which human beings get accustomed to new technical means that initially evoke mistrust and fear can be characterized as a process of repression of fear, or, more neutrally, as a diminution of fear" (1986, p. 160). However, as indicated by *PainStation* and *Tekken Torture*, fears mobilized by the specter of electrotactile shock have intensified, rather than diminished, since the era of electroshock arcade machines. Such a reaction troubles the notion of continual and incessant technological progress, implying that articulated cultural responses to technology often follow a cyclical rather than linear path. While technologically-induced sensations may remain constant, such sensations gradually accumulate external baggage that makes it impossible to distinguish between the technologically-generated, material signifier and its culturally-derived referent.

Finally, I would like to suggest that considerations of gamic electrotactility prompt us to reflect on and problematize the assumed audiovisuality of game histories [13]. While some game scholars have emphasized the body's role in creating a structuring frame for ludic experiences [14], the body in general, and tactility in particular, has gone underexamined by those working in the field of Game Studies. If

we accept Bose's electric kiss as the original ludic encounter with electricity, the unfolding of electric gaming's history was crucially marked by a shocking contact between bodies energized and charged by machines. Also, in interpreting the significance of games of pain, claims that users' corporeal experience with these games "puts them back in touch with their bodies" (2007, p. 242). Touch's neglected primacy in the lineage of electric gaming shows such a move to be unnecessary; players were never out of touch with their bodies, because electric games always implicate bodies in machines, both as mechanisms of control and as channels of information transmission.

Notes

1. Given the substantive strides forward in the analysis of game history since Huhtamo's essay, we might think of 'chronicle' as marking a mode of doing game history, rather than the province of a specific era.
2. As Costa (1988, p. 149) notes, very few early shock machines have been preserved in their original state. In the US, the hobbyists and collectors who have taken up the labor of persevering and restoring these machines participate in a vibrant subculture around antique arcade cabinets, meeting at various conventions around the country. The largest such gathering happen annually in Chicago each November at the Chicagoland Show. For details, see the show's website, <http://www.chicagolandshow.com/>.
3. In "Slots," Huhtamo briefly acknowledges the therapeutic function of these machines; at another point in his work, he establishes a more direct connection between medical electricity, arcade electricity, and the electric chair: "simply changing the context and controlling the voltage" of electricity allowed it to be "used either for executing, recuperating, or sportively challenging the body" (Huhtamo, 1995, p. 167). Here, Huhtamo seems to insist on a split between the recreational and medical uses of electricity; as I show throughout this article, coin-operated electrical machines rarely separated these two functions.
4. According to Delbourgo, electricity's "genteel promoters" elevated electrical play above "less virtuous" pursuits like card playing and tavern-going for its ability to instill "important moral lessons of reason, piety, and polite sociability" (2006, p. 112). Electrical play, then, can be understood as a type of "purposive" or "rationalized" play (see Narine and Grimes 2009, p. 320; Grimes and Feenberg, 2009, p. 106).
5. For an analysis of the relationship between femininity and electricity in the eighteenth century, see Wosk (2001, p. 68-72) and Delbourgo (2006, p. 112-119).
6. This phrase appeared featured on many machines of the era; see for example *Electricity is Life* (Midland Manufacturing Company, c. 1900), *Silent Physician* (Mills Novelty, c. 1905) and *Simplex* (Callie Brothers Company, c. 1902). For images of the era's various shock machines, see Costa's chapter on shock machines (1988, pp. 144-151), Rubin and Rubin's collection of images in *Drop Coin Here* (1979, pp. 81, 89), Bueschel's *Collectors Guide to Vintage Coin Machines* (1998, pp. 117-118), and Baudot's chapter "Electric Shock Machines and Viewers" (1988, pp. 136-140). Many of these images are also available at Alexis Bousiges' valuable Arcade History website, under the category "Shockers."
7. Armstrong (2000, p. 60) borrows this term from cultural critic Jeffrey Schapp. See Schivelbusch's chapter "Excursus: History of Shock" (1986, pp. 150-158) for an etymology of the term that, in spite of its comprehensiveness, does not account for its use to describe tactile encounters with electricity.

8. I thank Zach Whalen for suggesting this reading of *Spear*.

9. See Costa (1988, pp. 204, 207-208) for a description and images of these two games.

10. In the initial patent for the game mechanism, Jones (1998) suggested that the game be built in the actual shape of an electric chair, calling to mind an 1888 patent for a coin-operated electric chair (Costa, 1988, p. 149).

11. Margaret Minsky (1995), who worked on rumble feedback in arcade games during the 1980s, summarizes its early development in her dissertation. Also see Mark Paterson (2007, pp. 127-129) for a discussion of the use of haptics technology in video games. The dual motor rumble configuration used in the Xbox and Playstation controllers has been a standard feature in mainstream game consoles since Sony released the first iteration of the DualShock in 1997. In a controversial interview, Microsoft's Kudo Tsunoda denigrated this sort of rumble feedback as "rudimentary" (2010). Haptics researchers have long recognized touch's potential to serve cybernetically as an information-processing and -display channel (Bliss 1970). Immersion Corporation (2006), whose rumble technology is licensed in both Playstation and Xbox controllers, summarized the range of uses for vibrational feedback in a recent white paper.

12. Crogan does articulate a continuum between early arcades, as "sites of bodily performance" (p. 138), and the spaces where *PainStation* and *Tekken Torture* are enacted, but he does not introduce the connection to early twentieth century shock games.

13. Though scholars in the field of Media Studies have been slow to acknowledge the variability of tactile experiences, the empirical and theoretical work carried out on touch in the interdisciplinary field of Sensory Studies emphasizes touch's multiplicity and differentiation across cultures and epochs. See, for example, Classen (2012), Harvey (2011), and Paterson (2007).

14. While some film scholars have attempted to destabilize vision's dominance by emphasizing the tactile in their formulations of cinematic experience (Marks, 2000, 2002; Barker, 2009; Elsaesser and Hagener, 2009), this move leaves media theory with a visualist account of touch inadequate to its life apart from the screen. Similarly, media archaeological considerations of tactility, outside of Huhtamo's work, have been fairly limited; though Jussi Parikka nods productively toward touch in recent outlining of the field (2012, pp. 20, 28-33), he follows film theorists in making the history of mediatic touch an operation of Cinema Studies and other genealogies of visual media. However, by suggesting that game histories can undermine media archaeology's use of the visual to organize its historiography, Parikka opens a space for the field to expand beyond these constraints.

15. Examples include Apperley (2013), Galloway (2006), Huhtamo (1995, 2005), Laso (2007), Lipkin (2013), Millington (2009), and Parisi (2009). The recent popularity of gesture- and body-based control systems has prompted game scholars accord the body a new centrality, but as I suggest here, the body, as the interface that enacts the game, has always been crucial to the play experience.

Ludography:

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