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The Placebo Disavowed: Or Unveiling the Bio-Medical Imagination

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We especially need imagination in science. It is not all mathematics, nor all logic, but it is somewhat beauty and poetry.
-Maria Mitchell (1871)

The May 24, 2001, issue of *The New England Journal of Medicine* contained a provocative article by two Danish researchers Asbjorn Hrobjartsson and Peter Gotzsche entitled “Is the Placebo Powerless?” Based on a meta-analysis of 130 clinical trials for a wide range of treatments (including pharmacologic, physical, and psychological protocols) that provided comparisons of placebo with non-treatment results, the authors concluded: “We found little evidence in general that placebos had powerful clinical effects. . . . Outside the setting of clinical trials, there is no justification for the use of placebos.”^[i] Proclaiming the “newsworthy-ness” of this conclusion, Gina Kolata, science correspondent for *The New York Times*, published a first section assessment of the responses to the article that began: “In a new report that is being met with a mixture of astonishment and sometimes disbelief, two Danish researchers say the placebo effect is a myth.”^[ii] While the characterization of the placebo effect as “myth” in order to distinguish it from “real science” might at first glance seem a consequence of poetic—or at least journalistic—license, it in fact recapitulates the frame offered by John C. Bailar III, M.D., Ph.D., in the editorial comment introducing Hrobjartsson and Gotzsche’s piece. Pointedly entitled “The Powerful Placebo and the Wizard of Oz,” Bailar’s commentary opens with the following rhetorical gambit: “Some myths really ought to be true.”^[iii] Recasting as fiction an idea that had circulated as a scientific fact for the preceding half a century, Bailar preemptively disqualifies the placebo as “myth,” figuratively ostracizing it from the domain of bio-medical “truth.” He then succinctly describes what he takes to be the placebo’s main conceptual difficulty: “Is the improvement in patients given a placebo a result of the placebo itself, or of natural fluctuations in the progression of the disease, or of how the patient responds to the symptoms?”^[iv]

Differentiating among “the placebo” itself, “nature” (or “the disease progression”) itself, and “the patient” it/him/herself, Bailar asserts a set of necessary conceptual distinctions that the mythic placebo fails to maintain. This failure becomes problematic not simply because it introduces categorical confusion into the bio-medical schema, but also because this confusion makes it hard to know just who or what is acting when the placebo is in play. For bio-science causes must be singular and determinant if they are to count as “causes” at all. Thus, Bailar suggests, the underlying scientific problem with the placebo is that its effects (whatever they may be) cannot be uncategorically disentangled from “the natural course of the disease” and therefore do not really count as “effects” at all. Of course, we might want to ask what “the natural course of the disease” means here, given that whatever treatment or non-treatment protocol we’re considering takes place not only in the context of a clinical trial (which is not anyone’s idea of a “natural” setting) but also within a wider social context where a human response will always already be part of “the natural course of the disease.”^[v] Moreover, we might want to call attention to the evolutionary insight that much of human disease is a “natural” product of the co-mingling among humans and other organisms that we call “culture.”^[vi] However, all this is somewhat beside the point.

The real issue is: why does Bailar reassess the mystery of the placebo’s (non- or multi-determined) “effects” as being not very mysterious, much as the mystery of Wizard of Oz’s power was recast when “they found the curtain hid a very ordinary man”? Furthermore, what is at stake in this seemingly incongruous if not ridiculous comparison between the placebo effect and the Wizard of Oz? While Bailar’s invocation of this classic Hollywood tale might appear as merely a facetious literary device—further underscoring Hrobjartsson and Gotzsche’s interpretation of the placebo as simulacra, or perhaps even, to use the idiom of contemporary cinema, as “special F/X”—it actually reveals a crucial element of the placebo’s contradictory logic that itself remains hidden behind the curtain of this analogy. For, if we follow the filmic correspondence scrupulously, we recall that the Wizard disclosed behind the curtain at the control panel of his technical apparatus is not simply an “ordinary man.” Rather, as the movie’s concluding frame discloses, the Wizard in both his “wizardly” and “ordinary” guises, like many of the characters that Dorothy encounters in Oz, is an dream figure generated from the persona of Dorothy’s waking life by her fevered imagination. This disappearance of Dorothy’s imagination from Bailar’s text is not, I

will argue, just an oversight, or even an accidental misreading of a classic movie for polemical purposes. Nor is my calling attention to this interpretive ablation merely an over-reading of a rhetorical trope that was merely introduced to provide some levity in an otherwise humorless academic essay. For the forgetting of the imagination marks by its very absence bio-medicine's forgetting or even disavowal of "the imagination" itself--*a forgetting or disavowal against whose recognition the placebo constitutes a defense*. Given this more complicated scenario, where intra-diagetic figures are not always what they initially seem to be, we might then need to ask: What "wizardry" does the placebo manifest and why does it appear so scandalous to those who desire the certainties of bio-medical knowledge?

Of course, there are many concerns about the ethical use of placebos in clinical trials, especially where there are already effective treatment options available or where the risks of non-treatment are significant. For example, the numerous protests during the 1980s and 90s undertaken by ACT-UP and other advocates for people with AIDS against the clinical trial protocols stipulated by FDA for the approval of new drugs addressed precisely this risk. More recently, the latest revision of the Declaration of Helsinki, while still contentious, has been rewritten to address some of these concerns, advocating only the use of active-controls in circumstances where known prophylactic, diagnostic, or therapeutic methods exist.^[vii] Yet the controversy raised by Hrobjartsson and Gotzsche's meta-analysis does not address these ethical aspects of the placebo at all; indeed, their conclusion remarks that clinical trials provide the only justifiable context for the use of placebo. Instead the issue they raise concerns only the statistical indistinguishability of the responses produced by placebos from the unadulterated course of the disease—with the begrudging caveat that there does seem to be some placebo efficacy as an analgesic for pain. In this context, the critique of the placebo is twofold: its aims to confound those who would use the putative "positive" or "healing" effects of the placebo to therapeutic ends (except possibly in the murky domain of pain management) and moreover to deny that the "placebo effect" is even statistically significant enough to acknowledge as an effect in the first place.

From Hrobjartsson and Gotzsche's interpretation, what becomes clear is that there exists a certain confusion between the two senses of the placebo effect. On the one hand, the placebo refers to a control device mobilized within clinical trials in order to provide both a standard of comparison and a means to insure objective assessment. As Bailar puts it: "Effective blinding may require the use of a placebo." In this sense, the placebo is a procedural artifact introduced by a statistical mode of evaluation within which it negatively affirms the possibility of positively determining *as a matter of "objective" knowledge* the relation between the protocol being tested and the consequences that this protocol may or may not "cause." Thus, by testing a protocol against the results of a non-treatment control, clinical studies make the positive determination of a causal relation between treatment and cure into a virtual "placebo effect." On the other hand, this procedural use of the placebo gave rise to a secondary set of phenomena which, at least until Hrobjartsson and Gotzsche's study, appeared to indicate that healing may take place independently of the specific protocols which the trials are designed to evaluate. The "placebo effect" here gestures towards a non-deterministic quantum of ameliorative agency which is recognized in the course of a study but which can not be reduced to the effects of the protocol under consideration. Extrapolating from this secondary phenomenon, some physicians sought to capitalize on this unexplained ameliorative capacity by expanding the notion of the placebo beyond the context of clinical trials to the treatment setting itself. The placebo effect freed from the confines of the clinical trial thus emerges to participate in the practice of medicine proper, albeit as a determinant bio-scientific protocol and hence one potentially subject to "objective" evaluation and falsification.

As laudable as this intended use of the placebo as treatment may be, it unfortunately contains within itself a paradoxical premise that troubles all its subsequent deployments. For, in seeking to transform unintended results observed within clinical tests—results that contradict the very deterministic premise upon which this testing is founded (i.e., that therapeutic effects are produced by fixed "causes" whose utility can be statistically evaluated)—into the basis for new clinical treatments, physicians necessarily if unwittingly engage one of the most vexing aporia of the bio-medical imagination. Indeed, as I will argue in this essay, one of the reasons the placebo effect has become so controversial for bio-science is that it functions as a fetish for "the imagination" that not only "blinds" researchers so that they can perform "objective" assessments of therapeutic protocols, but also literally blinds bio-medicine to the very assumptions upon which it is based. In other words, the placebo effect as it has been understood for the last fifty years occupies the place of an absence or lack of coherence in the domain of medical knowledge concerning the self-reflexive potential that human organisms have to participate in and to change the course of our own healing. Indeed, as we shall see below, it was precisely by appropriating this potential for its own ends and denouncing its significance for those whom it treats that scientific medicine began to consolidate its prestige and authority as the paramount model for healing in the West at the end of the eighteenth century. Not surprisingly, then,

researchers have sought to cover up the scandal that the placebo effect manifests within contemporary bio-science either by denying its existence (or, at least, its statistical significance pace Hrobjartsson and Gotzsche) and folding it back into the nebulous domain of “the natural course of the disease,” or by transforming it into a instrument of medical practice itself. Hence, rather than simply representing a control device for medicine’s procedural self blinding, we might instead consider that the placebo constitutes one of medicine’s most glaring blind-spots.

One place to begin such a consideration is by noting that the history of the placebo effect is intimately connected to the history of bio-medical “progress.” As the story goes: Throughout the course of the nineteenth century, the scientific ideology of bio-chemical reductionism struggled to supercede various humoral and environmental explanations of disease, despite the fact that it offered no more viable treatment options than any of its less “scientific” competitors. However, at the end of the nineteenth century, in the wake of Pasteur’s famous vaccination experiments and the widely-heralded introduction of anti-toxins for tetanus and diphtheria, scientific medicine began to ground its claims to epistemological superiority in the promise of specific treatments targeted to effect the course of particular diseases. The first decades of the twentieth century witnessed numerous attempts to develop new bio-chemical protocols for illnesses that heretofore had been untreatable (e.g., the use of Salvarsan for venereal diseases), though with somewhat limited success overall. As medical historian Roy Porter remarks: “Well into the twentieth century, for most infectious diseases there were no effective therapies; ancient and useless remedies like emetics were still prescribed.”^[viii] This situation soon changed dramatically, first in the 1930s with the introduction of chemotherapies for streptococcal and pneumococcal infections, and then with the introduction of the antibiotic penicillin in the early 1940s, giving rise to a popular belief in medicine’s capacity to produce “magic bullets” against disease.^[ix]

Unfortunately, not all potential treatments were uniformly effective or harmless, so medical researchers undertook to increase the safety and reliability of their treatment protocols, especially the pharmacological ones. In order to accomplish this goal, they developed new testing procedures designed to “objectively” guarantee the “truth” of the knowledge produced about therapeutic interventions. Researchers found that if they systematically introduced non-active controls into their studies they could more adequately specify the determinant results produced by the treatments under consideration. Furthermore, they decided that if they made themselves unaware of whether the agent they were testing was active or not, they could remove the taint of any subjective desire for the protocol to succeed on either the researcher’s or the research subject’s part. “Double-blind” methodologies, first introduced on an ad hoc basis during the 1930s and 40s, thus emerged as the gold standard of evaluation for new medical interventions from the late 1950s on. In these kinds of trials, the establishment of determinant causality for a specific treatment is predicated on the ability to statistically distinguish the effects of the treatment from the effects of a placebo given under similar conditions with the further proviso that those administering the trials do not themselves know which subjects are receiving placebos and which are not.

Ironically, even as double-blind testing produced increasingly reliable evidence about the efficacy of new treatment options (so much so that they became an essential part of the FDA approval process for new drugs) they also provided increasing evidence for the consistently positive therapeutic effects induced by the control elements themselves.^[x] In 1955 the Harvard anesthesiologist Henry Beecher published a widely cited paper in the *Journal of the American Medical Association*, “The Powerful Placebo,” in which he affirmed: “It is evident that placebos have a high degree of therapeutic effectiveness in treating subjective responses, decided improvement, interpreted under the unknowns technique as a real therapeutic effect, being produced in $35.2 \pm 2.2\%$ of the cases.”^[xi] This often cited statistic, the very reference which Hrobjartsson and Gotzsche set out to debunk, seems to have underwritten a widespread acceptance of the ameliorative capacity produced by non-specific treatments. So much so in fact, that it not only lead to numerous attempts to explain the underlying physiological, cognitive, or psychological mechanisms that might account for such perplexing results (e.g., “conditioning,” “expectation,” “desire,” “transference,” “placebo-genic personalities,” “opiate mediated pain modulation,” “psychoneuroimmunology,” etc.), but also to a revision of all of medical history. In retrospect, it seems, any successes achieved by earlier forms of medical intervention, or even by forms of healing that occurred in other cultural contexts, not verified by current bio-medical understandings could be explained as some manifestation of the “placebo effect.”^[xii] Clearly, these forms of explanation act as supplements to a bio-medical orthodoxy that grounds its truth claims in an exclusive notion of bio-chemical causalities. They seek to account for any non-specific, non-reductionist amelioration of illness or suffering that occurs within the historical province of bio-medicine’s reign, as well as those that occurred temporally prior to or culturally outside of bio-medicine’s hegemony, in terms of the placebo’s non-determinant (or perhaps not-yet determinant) causality.

This expansive use of the “placebo effect” circumscribes curative techniques and practices not easily contained within bio-medicine’s prevailing modes of explanation. As such, it works to restrict the epistemological disturbances such healing engagements might introduce into the knowledge production that underwrites bio-medical practice. Instead of having to recognize, let alone appreciate, that other kinds of ameliorative agency may be grounded in different ways of making sense in and of the world, perhaps having their own specific forms of efficacy, the placebo concept allows bio-medicine both to diminish and to annex these alternative forms of healing agency for its own purposes. To designate an experience of healing as a “placebo effect” is not only to set it apart from the “real” domain of bio-chemical causality (while retaining the hope that some day a bio-chemical explanation may appear to account for this seeming deviation) but also to restrict the extent to which its existence can appear as a credible alternative to the deterministic claims of bio-medicine. Moreover, the implicit causality retained within the placebo designation maintains the giver rather than the receiver of the placebo as the active agent in the healing process, despite some limited recognition that “placebo effects [are] a subclass of self healing.”^[xiii] Taken together, these interpretations defend advocates of bio-medicine against the recognition that they are not the only agents of healing, and moreover against the recognition that healing, whenever it occurs, occurs through the life process of the person who is ill—albeit with all the support and encouragement that their powerful and often life-saving resources have to offer.

In part, this misrecognition derives from the near-universal adoption of the metaphor “placebo” for the control element in clinical trials. Arthur Shapiro identifies the first example of this metaphorical equivalence in Torald Sollmann’s 1930 article “The Evaluation of Therapeutic Remedies in the Hospital”^[xiv] which appeared in the *Journal of the American Medical Association*:

Apparent results must be checked by the ‘blind test,’ i.e., another remedy, or a placebo, without the knowledge of the observer, if possible. The placebo, if expectant treatment is permissible, also furnishes the comparative check of the natural course of the disease; comparison with another remedy helps towards a just perspective.^[xv]

The introduction of “placebo” here designates what is assumed to be a non-active standard of comparison which concomitantly allows the “natural course of the disease” to display itself in the experimental context. Or, more accurately, the placebo constitutes an experimental artifact that instrumentally brackets human expectation by inertly fulfilling the desire for and anticipation of treatment and thereby produces within the experimental apparatus the “naturalness” of “the natural course of the disease.” However, prior to this affirmative clinical reinscription, the word placebo had served for the preceding century and a half to designate the boundary of scientific medicine by negatively characterizing the kinds of treatments offered by those whom medicine would denigrate as “charlatans” or “quacks.”^[xvi] The history of this usage is somewhat circuitous: Derived from the future indicative of the Latin verb *placere*, to please, “placebo” was used to translate the opening word of Psalm 116:9 (*Placebo Domino in regione vivorum*—I will please the Lord in the land of the living) which was sung in the Vespers of the mediaeval church’s Office for the Dead and subsequently came to designate the Vespers itself. This “pleasing” aspect of the placebo was disaggregated from its ecclesiastical sense during the Middle Ages and came to mean flatterer, sycophant, or parasite—though perhaps continuing to carry with it some trace of mortality.

The first known use of “placebo” in a medical context occurs in 1785 in the second edition of Motherby’s *New Medical Dictionary* where it designates “a commonplace medicine or method.”^[xvii] For the next 150 years, the word was employed to disparage treatments that were understood to derive not from sound medical principles but were rather dispensed in order “to please” the patient and thereby curry both favor and income. The assumptions underlying this usage are twofold: 1. There is a distinct though not always visible threshold that marks the difference between authentic and inauthentic treatments and hence between authentic and inauthentic practitioners; and 2. Lay people will not be able to distinguish among authentic and inauthentic treatments and authentic and inauthentic practitioners because they are susceptible to being “pleased.” Leaving aside the obvious condescension and self interest that percolate through these assumptions, one might want to ask in what sense does the placebo “please”? For even if a placebo is, bio-chemically speaking, useless (i.e., an inert substance or a mere nostrum) it still must have some efficacy in order effect “pleasure” and thereby circulate as a commodity. In other words, it must appeal to someone or something in order to function as a placebo. Thus, we might need to inquire: to whom or what does the placebo’s “pleasure” appeal?

To speak of the placebo’s pleasure is to underscore the element of desire that it necessarily engages. In our species, an experience of illness often evokes not just an organic impulse towards physiological homeostasis, but also an active desire for amelioration and care. This reflexive relation to the bio-chemical events that constitute both disease and healing at a

cellular or molecular level suggests that our subjective experience is always already part of the organismic processes that we call our lives. It is in this sense that Candice Pert, the path breaking bio-chemist who “discovered” the opiate receptor in the brain, considers the human organism as a hybrid “bodymind” where physiological, psychological, and emotional phenomena are mediated by the molecular action of the same peptides.^[xviii] Not being much of a bio-chemical reductionist myself, let alone a bio-chemist, I prefer to denominate this human capacity for self engagement by the name that scientific medicine first used to exclude it: “the imagination.” Certainly, the imagination is a capacious if not nebulous concept whose history marks the trajectory of human thinking both about thinking and about “the human.” However, “the imagination” was precisely what late eighteenth-century scientists and natural philosophers discovered they needed to exclude in order to ground the possibility for establishing a deterministic causality with respect to human bodies. For, as Cornelius Castoriadis remarks: “The imagination is ... in its essence rebellious against determinacy.”^[xix] Thus, the imagination continues to offer a useful fulcrum for prizing apart the deterministic logic that underwrites our contemporary bio-medical understanding. As I will use it here, the imagination simply refers to the hylemorphic capacity of humans: i.e., our capacity to inform the matter that we are. The imagination (in my imagination) thus specifies “the human” as a hybrid concept marking our corporeality and conceptuality as inextricably intertwined. In this regard, medicine itself constitutes an “imaginary” practice, albeit one that is also material and real. Indeed, as I will suggest below, it is by appropriating the imagination for its own projects and disavowing its significance for those whom it treats that bio-medicine comes to dominate the province of healing throughout the course of the nineteenth and twentieth centuries.

In this undertaking, the placebo, as a derisive designation for treatments that are merely “pleasing” and therefore simply “imaginary,” actively polices the demarcation between mind and matter that scientific medicine used to define its turf. When the placebo gets refigured in the twentieth century, first to name the control elements that produce the “objectivity” of clinical testing, and then to refer to the unintended amelioration that these controls seem to regularly induce, it carries with it the disavowed effects of the imagination to which the placebo’s “pleasing” aspect appeals. By constituting the placebo effect as an (as yet) inexplicable healing consequence revealed by the very experimental apparatus that was designed to affirm determinant bio-chemical causality, contemporary bio-science can both evoke and efface the play of the imagination as it informs the materiality of humans. It is in this sense that I referred above to the placebo as a fetish for the imagination: the placebo covers over the absence where the material effects of the excised imagination continue to manifest themselves within the bio-medical apparatus. In either avowing or disavowing the placebo, in either appropriating or denying its effects, biomedicine simultaneously invokes and excludes the imagination as one of its most powerful resources for healing. Yet when medical rationality conjures the imagination as that which it must bracket in order to assure the efficacy of a drug or a treatment protocol, it rejects out of hand any results not induced by the material “cause” under consideration. What bio-science (especially in its contemporary corporate forms) wants and needs, is to establish unilateral relations between material treatments and documented cures which it can then use both to demonstrate its practices and to market its products. While this desire for monocausal explanation has undoubtedly contributed to the ameliorative effects to which bio-medicine has given rise, it also radically limits the domain of healing action and of healing agents. The possibility that the imagination of a person who suffers might play a curative role within the event of illness is a priori excluded from scientific medicine because it introduces a non-reducible variable which de-centers bio-science’s self representation as the only legitimate agent of healing. Thus, within scientific medicine, the “placebo effect” is bracketed not because it does not produce healing effects, but precisely *because it does*; however, the effects the placebo produces are negatively attributed to the imagination and thus deemed without real interest.

In order to flesh out the troubling paradox that the placebo effect presents for contemporary bio-science, it is necessary to reflect on how and why “the imagination” came to be excluded from proper medicine. Or even: how and why the exclusion of “the imagination” from medicine comes to define the kind of knowledge that constitutes the “property” of medicine. As the historian and philosopher of science, Isabelle Stengers suggests in her brilliant essay “The Doctor and The Charlatan,” it is precisely by abjuring “the imagination” that medical rationality captured the Western imagination in the first place.^[xx] Stengers takes the denunciation of the “charlatan” as an “inaugural scene” of scientific medicine and illustrates how by disqualifying the imagination as a therapeutically effective force, bio-science clears the epistemological ground for bio-medical determinism. This disqualification in turn marks the threshold of bio-medicine’s scientificity per se. The reciprocal action of disqualification and (or as) qualification situates the knowledge claims of bio-medicine within the penumbra of “truth” in so far as it negates the material possibility for what we might call “imaginary transformation.” Yet it succeeds in doing so only to the extent that it itself brings such imaginary transformation to bear against the imagination in the first place. Indeed, as Stengers argues elsewhere, the “power of fiction” is constitutive of science generally since “it is that

against which science must differentiate itself, and that *through which* it defines-disqualifies everything that is not science."
[\[xxi\]](#)

Medicine has existed as an authorized and authorizing profession since the Middle Ages. However, in the late eighteenth century it sought to revalorize its superiority over and against other more heterodox or traditional healing practices by setting up shop in the domain of science (even as the understanding of what would make such a science "scientific" was still very far from clear). In other words, by asserting a privileged relation to scientific rationality, medicine sought to solidify its authority to name and shape social reality over and against all other forms of healing; simultaneously it sought to institutionalize its right to regulate those who could be so authorized. As numerous histories of science have demonstrated, the conditions under which any science could provide "true" knowledge about the material world were widely contested and negotiated throughout the seventeenth and eighteenth centuries.[\[xxii\]](#) Yet, even as challenging as these questions of truth were for the physical sciences generally, the question of scientificity was especially vexing for the relatively belated domain of biology—first denominated as an epistemological field in 1800--which took such changeable entities as organisms for its provenance.[\[xxiii\]](#) Needless to say, it was even more problematic for medicine which took the healing of the self reflexive human organism as its object.[\[xxiv\]](#) In this emerging moment, when medicine was enthusiastically trying to hitch its wagon to science's ascending star, any bodily transformations that could be attributed to the imagination rather than to demonstrable material causes provided an especially vexing impediment to the establishment of bio-scientific certainty and hence threatened the credibility of bio-medical superiority.

Introducing the discriminatory logic that subtends all subsequent "blind-testing," and hence all contemporary uses of the placebo, the classic denunciation of the imagination appears at, and perhaps even as, this threshold of modern medical science. In 1784 Louis XVI appointed two royal commissions comprised of members drawn from the Faculty of Medicine and the Royal Academy of Science to decide the credibility of the Austrian physician Franz Anton Mesmer's claims that he was able to harness the forces of "animal magnetism" to healing ends. At the time, the vogue for Mesmerism among the Parisian elite, as well as among their social subordinates (to whom Mesmer offered his services pro bono) raised both political and ethical concerns about the practice that Mesmer introduced to the French capital city. Prior to his entry into French society, Mesmer had trained as a doctor in Vienna, receiving his degree in 1766 after completing a thesis on the generalized influence of celestial bodies on the human organism which he named "animal gravity."[\[xxv\]](#) He practiced medicine in Vienna through the middle of the 1770s during which time he began to experiment with the use of magnets in healing. From these attempts he claimed to have discovered a more diffuse, energetic "magnetism" which he could channel through various instruments or through his own body towards the suffering bodies of others. He came to understand animal magnetism as a material influence which bodies (animate or inanimate) exert upon each other through the mediation of universal super-fine fluid which sustains and embraces all animal life. Illness in this model results from the blockage of the magnetic fluid and health is restored when the fluid runs free. Since there is a natural tendency towards this end anyway, the role of the physician is simply to assist and augment natural healing.

Mesmer arrived in Paris in 1778 and with good connections was quickly able to set up a thriving practice. His unorthodox techniques—centered on his famous "baquet" (a wooden tub filled with metal and glasses of water designed to concentrate and channel animal magnetism)—proved simultaneously incredibly popular and incredibly provocative. At first glance, Mesmer's practice might seem perfectly aligned with the non-interventionist protocols of the "anti-medical movement" of the 1770s which condemned the use of radical and often violent cures (bleeding, blistering, cupping, the use of emetics, diuretics, starvation diets, etc.) and affirmed the traditional Galenic reliance on the "healing powers of nature." However, Mesmer himself was not interested in playing the oppositional outsider and instead assiduously, and indeed somewhat testily, sought the approval of the official bastions of medical practice: the Academy of Science, the Society of Medicine, and the Faculty of Medicine of the Université de Paris, none of which proved very amenable to his approaches. Moreover by the early 1780s he began to evoke hostility among numerous well-placed members of the medical establishment (including Noel de Rochefort Retz, physician ordinaire to the King) who fired off severely critical attacks launching what over the next decade amounted to a virtual pamphlet war. The matter was only put to the test, however, after the repeated intercession of Charles D'Eslon, one of Mesmer's protégés, who before apprenticing with Mesmer had been the physician ordinaire to the King's brother, the Comte d'Artois, and who after this apprenticeship was struck off the roles of *docteurs régents* by the Faculty of medicine for his trying to promote his new affiliation. Using his aristocratic connections, D'Eslon successfully lobbied for the establishment of a royal commission of inquiry and positioned himself as the official subject of the inquiry—a usurpation of position that caused Mesmer to break with him definitively.

The results of D'Eslon's efforts were contained in two reports commissioned by Louis XVI: one written by a committee of members from the Faculty of Medicine and the Academy of Sciences—chaired by Benjamin Franklin and including Guillotin, Lavoisier, Bailley, Majault, Sallin, Darcet, Laroi, and Bory-- and the other of members of the Royal Society of Medicine (Poissionner, Caille, Mauduyt, Andry and Jussieu), plus a dissenting report produced by the famed eighteenth century botanist Jussieu as well as a reply by Mesmer himself. The documents are wonderfully complex taking up not only the epistemological questions raised by the practice of Mesmerism per se, but also the gendering of the female body, its susceptibility to male influence, the autonomy of human bodies generally, the permeability of individuals to social and natural forces, etc. These documents were widely disseminated at the time and gave rise to a very lively—and often hostile—set of replies and counter-replies that continued throughout Europe well into the Nineteenth Century. While an analysis of this dense textual nexus would do much to disclose the complex negotiations that underlie the emergence of scientific medicine during this period, such a reading is beyond the scope of my concerns here. Instead, let me focus exclusively here on the primary report produced by the committee chaired by Benjamin Franklin, which introduced the discriminatory calculus that continues to underwrite the contemporary uses of both the placebo and the placebo effect.

In the process of debunking animal magnetism as a non-verifiable, and hence socially invalid, and *therefore* dangerous form of healing, the commission established a hallmark which two centuries later continues to serve as the standard for bio-medical truth: “blind testing.”[\[xxvi\]](#) In their proto-type for this procedure (which included lengthy deliberations about just how to construct a really effective blindfold) the commissioners sought to eliminate any possibility that the subjects of their examination could be influenced by factors other than the single agent whose efficacy they were charged to evaluate. Having literally blinded their experimental subjects to the actions of the mesmerist, the commissioners decided, or as they would say “proved,” that there was no causal connection between the action of the force that the mesmerist purported to invoke and the reactions manifest by the human bodies under their scrutiny. Instead, according to the interpretation developed by the commission, animal magnetism produced its results not by establishing determinant material effects, but through the confluence of “contact, imagination, and imitation” with the imagination doing preponderance of the work: “There are no real cures and the treatment is tedious and unprofitable. . . . [T]hey are to the unobservant the result of magnetism, a proof of the existence of that agent, although they are really due to the power of the imagination.”[\[xxvii\]](#) Stengers argues that this “mode of denunciation” inaugurates medical rationality by constituting an exclusionary logic that purports to distinguish between “real” and “imaginary” cures. Real cures are those that unilaterally determine their effects, while the results due to the imagination are defined only negatively by their non- or multi-determinations. There was no dispute then that Mesmerism gave rise to effects, just that these effects were produced by imaginary causes and therefore could have no real therapeutic value. Thus, as Stengers succinctly puts it, in bio-medicine: “the imagination . . . is nothing other than a manner of disqualifying phenomenon, not of comprehending them.”[\[xxviii\]](#)

But what exactly is disqualified under the name of the imagination? And how is this disqualification accomplished? The first time the commissioners invoke the imagination as way of undermining the claims about animal magnetism they do so in order to explain why one of the working-class female subjects upon whom they have been performing their experiments continually testifies to animal magnetism's positive effects. Their account begins by conjuring a thought experiment:

Let us picture a woman of the people, ignorant, attacked by an illness and desiring a cure, ceremoniously conducted before an august assembly composed in part by doctors, where an unfamiliar treatment is administered which she has persuaded herself in advance will prove prodigious. Add to this that her compliance is paid for and that she believes us more satisfied if she says that she experiences these effect and we have *the natural causes that explain these effects*; or we have at least legitimate reasons for doubting that their real cause is magnetism.[\[xxix\]](#)

Invoking the reader's imagination on their own behalf, the commissioners dismiss their subject's responses as a form of anticipated persuasion which they characterize as “an effect of the imagination.” Suggesting that the woman on whom they are practicing is interested—physiologically, psychologically, and financially—in affirming the very effects that they seek to put into question, the Commissioners identify imagination (and interest) exclusively with their experimental subject *but only insofar as they disavow their own imagination (and interest) which they conceal beneath their interpretive labor*. Hence, they purport to determine “the natural causes that explain these effects,” thereby establishing imagination and interest as “natural” actants on which they themselves rely in order to cast doubt upon animal magnetism as a “real cause.”

It is at this point that the Commissioners conceive the brilliant idea of blindfolding the woman in order to “screen out her imagination, or at least to baffle it” [il ne s'agissait que de la mettre a l'abri de son imagination, ou du moins de mettre son

imagination en default].[\[xxx\]](#) Repeating their experiments under wraps, they find that there is no regular or predictable correlation between the actions of the mesmerist and the responses of the magnetized subjects. Instead the blindfolded subjects respond randomly leading the commissioners to affirm: “it is consequently an effect which has absolutely no physical or exterior cause and which can have no other cause than the imagination.”[\[xxxi\]](#) Or as they conclude: “the imagination is the true cause of the effects attributed to magnetism.”[\[xxxii\]](#) Yet in so characterizing imagination as “the true cause” the Report establishes the imagination as a “true” form of causality. Indeed, we might say that the imagination serves here as the figure for an effective cause, but it does so precisely by providing a rhetorical form within the scientific discourse for effects for which there is no “real” determination—including the effective cause which is the discourse itself.

Undoubtedly, the Report’s use of the imagination here draws upon contemporary understandings of the concept. In his magisterial meditation on the “creative imagination,” James Engell succinctly summarizes the mediating function that the imagination performs throughout the eighteenth century:

By the mid 1700s a rapid movement was under way to show that the idea of imagination, with one foot in the empirical and one foot in the ideal or transcendental, could bestride those two peninsulas of thought, and like a colossus, protect and unify the harbor between. The imagination could, in its dialectic, synthesize soul and body; it could unite man’s spirit and affections with the concrete reality of nature. The imagination would solve the dilemma of dualism.[\[xxxiii\]](#)

Extrapolating from Engell’s characterization, Forest Pyle acutely observes:

[T]he imagination does not denote a process of mind and is more accurately regarded as the figural juncture of forces in conflict than as consistent activity, . . . imagination refers both to the necessity of linking mind with nature, spirit with matter, subject with society *and* to the formidable resistances to all such linkages. . . .[\[xxxiv\]](#)

Thus, Pyle concludes : “[T]he imagination is assigned the responsibility of making a linkage, an articulation. . . .”[\[xxxv\]](#) Certainly, the Report must be situated within this general historical horizon and partakes of the philosophical and aesthetic considerations of the imagination that are the hallmark of much eighteenth-century reflection. However, the Report’s characterization of the imagination also seems particularly indebted, as Franklin Rausky has suggested, to the great French naturalist Georges Louis-Leclerc Buffon’s more embodied sense of “imagination.”[\[xxxvi\]](#) This indebtedness reflects both Buffon’s role as the giant of eighteenth-century natural history as well as his enduring prominence within the Academy of Sciences, several of whose members were among the authors of the Report. It also marks the Report’s larger project to circumscribe the practices of legitimate—and legitimated—medicine within the domain of natural science. Unlike the philosophical psychology of thinkers like Shaftesbury and Leibnietz, who theorized the imagination as a mental faculty that considered human engagement in the world primarily as a perceptual problem (eg., Leibnietz’s famous distinction in his *Nouveau Essais* (1704/1765) between “*perceptions insensibles*” and “*la puissance active*” which founds a duality of mind), Buffon situates the imagination at and as the threshold between sensory and conceptual intelligence, thereby both recapitulating and revising the famous Cartesian duality of body and mind.[\[xxxvii\]](#)

Buffon introduces his discussion of the imagination in the fourth volume of his magnum opus *Histoire Naturelle* published in 1753. Here he applies his naturalist gaze to a comparison of humans and animals in order to “lead us to the important science of which man himself is the object.”[\[xxxviii\]](#) As a prelude to the section that considers human exceptionalism, under the rubric “Homo Duplex,” Buffon defines the imagination as simultaneously a faculty of the soul unique to humans and as “a principle which depends only on the corporeal organs and which we have in common with animals.”[\[xxxix\]](#) This dualistic imagination is critical for Buffon’s project since it allows him to simultaneously link humans to and distinguish them from other animals. Indeed, for Buffon, the duality of the imagination figures the duality of the human: “Inner man is double, he is composed of two principles different by their nature and contrary in their action. The soul, the spiritual principle, the principle of all knowledge (*connaissance*), is always opposed to this other animal and purely material principle.”[\[xl\]](#) Yet the two opposed “principles” are always already joined in and by the imagination, and this is precisely the point. The ability of images to act directly on the human organism constitutes the residue of our animal appetites, appetites that link us physically to the material world through which as organisms we express and satisfy our desires.

[T]his tumultuous and forced action is excited inside of us by objects which correspond to or contravene our desires. These lively and profound impressions, produced by the images of these objects (which in spite of ourselves are constantly renewed) constrain us to act like animals, without reflection or deliberation. This representation of objects, more active still

than their presence, exaggerates everything, falsifies everything. This imagination is the enemy of our spirit, it is the source of illusion, the mother of passions which master us, prevailing over us despite the efforts of reason, and rendering us the unhappy theater of a continual combat, where we are almost always vanquished.[\[xli\]](#)

Here Buffon—perhaps prefiguring Lacan’s insight concerning the “dehiscence at the heart of the [human] organism”[\[xlii\]](#)--characterizes the physiological impact of images on and within the human subject. In spite of ourselves, and particularly in spite of our *rational* selves, we are “constrain[ed] to act like animals without reflection or deliberation” in so far as the imagination articulates us in an embodied universe whose materiality overpowers the limited resources of our knowledge [*connaissance*]. The imagination functions then both as the condition for and the limit on human knowing, incorporating the very contradiction that Foucault so eloquently characterized in *The Order of Things* as that “strange empirico-transcendental doublet” called Man.[\[xliii\]](#)

It is precisely in order to assert the ascendancy of reason over bio-matter, then, that the Commissioners must rigorously exclude the imagination from their understanding of medicine. When the mesmerist whom they were examining attempts to concede the point that the effects produced by animal magnetism could be produced through the imagination and then even more provocatively suggests that perhaps the imagination could provide a resource for medical practice (anticipating the way that contemporary physicians seek to reinscribe the placebo effect within medicine proper) the Commissioners not only reject this possibility out of hand, but use it to proclaim their victory.

[The mesmerist] believed that it is possible to suppose in fact that the imagination played the largest part in the effects of animal magnetism. He said that this new agent was perhaps only the imagination itself, whose power is as effective as it is little known. He reported having constantly recognized this power in his treatment of patients, and he reported as well that many had been cured or infinitely assuaged. He remarked to the Commissioners that the imagination, thus directed to the amelioration of human suffering would be a great resource for the practice of medicine and, persuaded of the truth of this power of the imagination, he invited them to examine in his office the process and its effects. If [he] is still attached to the first idea that these effects are due to the action of a fluid [animal magnetism] which is communicated from individual to individual by touching or by the direction of a conductor, he will not delay in recognizing with the Commissioners that an effect requires only one cause, and that if the imagination suffices the fluid is unnecessary.[\[xliv\]](#)

Here the Report triumphantly affirms the logic which underwrites their interpretation and justifies both the denial of the existence of animal magnetism and the exclusion of the imagination from medical practice. The axiom that only one cause is needed for an effect [*“il ne faut qu’une cause pour un effet”*] defines determinism as the epistemological ground for bio-medical truth. The imagination, which admits of over- or non-determinations, contravenes this principle and hence much be debunked as the source of misguided or even dangerous healing practices. By refusing to even consider the imagination as a possible medical technology, the Report establishes the exclusionary calculus that legitimates bio-determinism as the sole criteria for verifying “true cures” and thereby marks the threshold of modern medical practice.

Following Bruno Latour, who admonishes us that “we have never been modern,” however, I want to suggest that “modern” bio-medicine has never fully modernized insofar as it has never successfully bracketed the imagination from its practices.[\[xlv\]](#) Furthermore, just as Latour suggests that modernity can only manifest the exclusionary calculus of “purification” by which it seeks to separate society from nature, humans from non-humans, or individuals from society, though the multiplication of “hybrids” that partake of both, I would like to suggest that medicine can only purify “the imaginary” and “the material” as ontologically distinct through its largely unappreciated reliance on the placebo as a “translation” between the them. When medicine began to invoke the placebo as an illegitimate, a.k.a. “non-medical,” form of healing at exactly the same time that the Royal Commission was debunking the effects of Mesmerism (remember the first known medical use of “placebo” was in 1785, the year after the Commission’s report appeared) it did so by specifying a placebo’s illegitimacy not as a sign of its lack of efficacy but as the “pleasing” materialization of a non-determinant cause. In order to produce this discriminatory specification, however, medical authorities necessarily invoked their own imagination about the imagination, and especially about its radical distinctness from the material. They thereby effaced the materiality of their own imaginary intervention, corporealized in the very institutional discourses and practices founded on this conceptual distinction. Thus, rather than having ever actually been excluded from medical rationality, the imagination simply passed from being an undesirable attribute of the *objects* of bio-medical inquiry to being an essential though unacknowledged tool for its *subjects*.

By offering this genealogical frame for recent controversy concerning the placebo effect, I hope in part to help revalue and

therefore appreciate the work of the imagination which has never been absent from medicine. Certainly, no one would want to claim that bio-medicine lacks imagination. All of the classic accounts of therapeutic breakthroughs from Jenner to Lister to Pasteur to Watson and Crick emphasize the “genius” that enabled their reinterpretation of empirical evidence to new ends. Indeed, even the accounts of the daily experiences of a general practitioner routinely link the “art” and “science” of medicine. However, for the last two hundred years the role of the imagination has been subordinated to the logic of determinate causality (as if this were not itself a particular historical manifestation of the imagination) both for the practitioners of scientific medicine and for their clients. When in the course of the Twentieth Century the effects of the imagination began to reassert themselves within the very “double-blind” testing protocols designed to produce and reproduce the truths of bio-scientific rationality, they were quickly, if contentiously, appropriated for (or disavowed by) bio-medicine as manifestations of the “placebo effect.” Yet what the ameliorative potential of the placebo reveals—even if it only obtains as an analgesic for pain or even if it only works for a very limited subset of individuals—is that the imagination may have the capacity to inform the materiality of the human organism on a molecular and cellular level.

Certainly, the founding of the Office for Alternative Medicine in 1992, or the establishment of the National Center for Complimentary and Alternative Medicine in 1998, under the auspices of the National Institutes of Health marks somewhat of a sea change in official understandings about the potential that non-allopathic treatments offer.^[xlv] Moreover, recent articles in bio-scientific publications on techniques like bio-feedback for high blood pressure, chronic pain, migraines, incontinence, and constipation, or on the use of guided imagery for numerous conditions including cancer, asthma, arthritis, coronary disease, diabetes, fibromyalgia, headache, and inflammatory bowel disease, among others, along with considerations of such practices as journal keeping and creative writing as therapeutic modalities, suggest that there exists some practical recognition of the imagination as a resource for healing—even if large commitments of resources have not always followed from this recognition. (Not surprisingly, much of the interest in these techniques appears in the highly gendered domain of nursing, along with the slightly less gendered domains of psychotherapy and psychiatry.) No matter how marginal they remain with respect to the vast and highly funded arena of bio-chemical bio-medicine, however, these technologies gesture towards the possibility for freeing the imagination from the confines of the placebo and reintroducing it to medicine as a resource in its own right. While I think it would be wonderful if bio-medicine could begin to acknowledge the limitations of its determinist epistemology which are deeply embedded in its history and open its arms in welcome to new “imaginary” technologies that have been previously excluded, I’m not really holding my breath. Indeed, what I take to be the most promising possibility raised by my attempt to recall the imagination from its exile outside the bio-medical domain lies with those of us who are the consumers of bio-medicine.

For example, rather than debunking the placebo as a myth, it might be time to suggest that there is no need to abjure “pleasure” as a degradation of scientific principles and that medicine might well want to adopt an “ethic of pleasing” as one of its most valuable assets. Offering an explicit appeal to a patient’s desire (instead of covertly denying and disavowing its existence in the name of a “scientific” practice) might open up a collaborative dynamic in which we could begin to investigate more creative and effective ways to invoke the human imagination to healing ends. Given the large amounts of money that Americans currently spend out of their own pockets for various forms of “alternative” healing practices—conservatively estimated at \$27.0 billion in 1997, the same amount spent out of pocket on all US physician services—it appears that there is already a marked and market recognition on the part of U.S. consumers of some insufficiencies in the bio-medical paradigm.^[xlvii] Yet by and large bio-medicine continues to dismiss or ignore the implications of these alternatives to its own orthodoxies, or at the very least to confine them within the supplemental categories “alternative” or “complimentary,” implicitly holding them to be contemporary forms of what their nineteenth-century counterparts would have dismissed as “placebos.” Clearly, a lot of us don’t agree with this assessment and have taken our bodies and our dollars to the very placebo purveyors that medical science has been warning us against for the last two hundred years. More than just a matter of consumer choice, our decisions to patronize non-medical healing practitioners suggest that bio-medicine’s hegemony over American health care is losing some of its purchase. Indeed, it might even be a sign that we are in the process of reclaiming our imaginations as a healing resource (even insofar as we are imagining that bio-medicine is not the only credible healing regime) from the oblivion to which scientific medicine has sought to consign them for the past two centuries or so. For we should remember that it is only the imagination of those who seek healing that has been ostracized from the bio-medical pantheon, not that of those who claim to be the authorized agents of healing. The recent disavowal of the placebo effect by Hrobjartsson and Gotzsche might ultimately prove most useful, then, in helping us understand that the imagination does not need to be and has never actually been exiled from medical practice. For, the placebo, as it has come down to us, always already situates determinism as the privileged form of biological causality,

rendering all other options somehow less real and less true. Perhaps by noticing that the placebo effect marks a blind spot within the ways scientific medicine has made the world visible and intelligible for the last two centuries, we can not only begin to recognize but also appreciate that the bio-medical imagination does not and need not function only when veiled.

[i] Asbjorn Hrobjartsson and Peter Gotzsche. "Is the Placebo Powerless? An Analysis of Clinical Trials Comparing Placebo with No Treatment" *New England Journal of Medicine* 344 (2001): 1594-602.

[ii] Gina Kolata, "Placebo Effect is More Myth than Science, Study says." *New York Times*, May 24, 2001. A 20. Also, Gina Kolata. "Putting Your Faith in Science?" *New York Times*, May 27, 2001. 4:2.

[iii] John Bailar. "The Powerful Placebo and The Wizard of Oz." *New England Journal of Medicine* 344 (2001): 1630-1632.

[iv] Bailar, 1631.

[v] This is a basic premise of most medical anthropology. See for example: Lola Romanucci-Ross, Daniel E. Moerman, Laurence R. Tancredi, eds. *The Anthropology of Medicine : From Culture to Method*. Westport, Conn. : Bergin & Garvey, 1997. For a few examples within the literature on the placebo, see David Morris, "Placebo, Pain and Belief: A Biocultural Model." In Anne Harrington, ed., *The Placebo Effect: An Interdisciplinary Exploration*. Cambridge: Harvard UP, 1997. 187-207; Robert Hahn. "A Sociocultural Model of Illness and healing." In Leonard White, Bernard Tursky and Gary Schwartz, eds. *Placebo: Theory, Research, Method*. New York: The Guilford Press, 1985.167-195.

[vi] On the evolution of disease, see William McNeill. *Plagues and People*. New York: Anchor Press, 1976. Also on contemporary manifestations, see Manuel De Landa. "Flesh and Germs." *A Thousand Years of Nonlinear History*. New York: Swerve Editions, 1997; Laurie Garrett. *The Coming Plague: Newly Emerging Diseases in a World Out of Balance*. New York: Farrar, Strauss and Giroux. 1994.

[vii] Ezekiel Emanuel and Franklin Miller. "The Ethics of Placebo-Controlled Trials—A Middle Ground." *New England Journal of Medicine* 345 (2001): 915-919.

[viii] Roy Porter. *The Greatest Benefit to Mankind: A Medical History of Humanity*. New York: Norton, 1997. 452.

[ix] Alan Brandt. *No Magic Bullet: A Social History of Venereal Disease in the United States Since 1880*. New York: Oxford UP, 1985.

[x] On the history of clinical trials, see Arthur Shapiro and Elaine Shapiro. *The Powerful Placebo: From Ancient Priest to Modern Physician*. Baltimore: Johns Hopkins UP, 1997. 123-174. The literature on the placebo is copious. See for example: Daniel Moerman. *Meaning, Medicine and the 'Placebo Effect.'* Cambridge : Cambridge University Press, 2002; Harry A. Guess, ed. *The Science of the Placebo : Toward an Interdisciplinary Research Agenda*. London : BMJ, 2002; David Peters, ed. *Understanding the Placebo Effect in Complementary Medicine : Theory, Practice, and Research*. New York : Churchill Livingstone, 2001; Howard Brody with Daralyn Brody. *The Placebo Response : How You Can Release the Body's Inner Pharmacy for Better Health*. New York : Cliff Street Books, 2000; Anne Harrington, ed. *The Placebo Effect: An Interdisciplinary Approach*. Cambridge,MA: Harvard University Press, 1997; Michael Shepard and Norman Sartorius, eds. *Non-Specific Aspects of Treatment*. Toronto: Hans Huber, 1989; Howard Spiro. *Doctors, Patients, and Placebos*. New Haven: Yale University Press, 1986; Geoff Watts. *Pleasing the Patient*. London : Faber and Faber, 1992; Howard Brody. *Placebos and the Philosophy of Medicine: Clinical, Conceptual and Ethical Issues*. Chicago: University of Chicago Press, 1980; Michael Jospe. *The Placebo Effect in Healing*. Lexington, MA: Lexington Books, 1978;

[xi] Henry Beecher. "The Powerful Placebo." *Journal of the American Medical Association*. 159 (1955). 1602-6.

[xii] Shapiro and Shapiro provides a classic example of this style of medical historiography.

[xiii] William Plotkin. "A Psychological Approach to Placebo: The Role of Faith in Therapy and Treatment." In White, Tursky, and Schwartz. 245.

[xiv] Shapiro and Shapiro, 139.

[xv] Torald Sollmann. "The Evaluation of Therapeutic Remedies in the Hospital." *Journal of the American Medical Association*. 94 (1930). 1280.

[xvi] Shapiro and Shapiro provide the most comprehensive etymology in their chapter "The Semantics of the Placebo," 28-42.

[xvii] OED

[xviii] Candace Pert. *The Molecules of Emotion: The Science Behind Mind-Body Medicine*. New York: Simon & Schuster, 1999.

[xix] Cornelius Castoriadis. "The Discovery of the Imagination." *The World in Fragments: Writings on Politics, Society, Psychoanalysis, and the Imagination*. Stanford, CA: Stanford UP, 1997. 214.

[xx] Isabelle Stengers, "Le Médecin et Le Charlatan." Tobie Nathan and Isabelle Stengers. *Médecins et Sorciers*. Paris: Le Plessis-Robinson : Synthélabo. 1995.

[xxi] Isabelle Stengers. *The Invention of Modern Science*. Trans. Daniel Smith. Minneapolis: University of Minnesota Press, 2000. 83.

[xxii] See for example: Steven Shapin & Simon Schaffer . *Leviathan and the Air-Pump : Hobbes, Boyle, and the Experimental Life*. Princeton, NJ : Princeton University Press, 1985. Steven Shapin, *The Scientific Revolution*. Chicago, IL : University of Chicago Press, 1996. Steven Shapin. *A Social History of Truth : Civility and Science in Seventeenth-Century England*. Chicago : University of Chicago Press, 1994. Bruno Latour. *We Have Never Been Modern*. Trans. Catherine Porter. . Cambridge, Mass. : Harvard University Press, 1993. Bruno Latour and Steve Woolgar. *Laboratory Life : The Construction of Scientific Facts*. Princeton, N.J. : Princeton University Press, 1986; Donna J. Haraway. *Simians, Cyborgs, and Women : the Reinvention of Nature*. New York, NY : Routledge, 1991.

[xxiii] Jacques Roger. *The Life Sciences in Eighteenth-Century French Thought*. Trans. Keith Benson. Stanford, CA: Stanford University Press, 1997 [1963].

[xxiv] Georges Canguilhem, "Puissance et Limites de la Rationality en Medicine." Georges Canguilhem et al. *Médecine, Science, et Technique*. Paris: Editions du Centre National de la Research Scientifique, 1978. 109-129.

[xxv] On the history of mesmerism, see Robert Darton. *Mesmerism and the End of the Enlightenment in France*. Cambridge: Harvard UP, 1968; Franklin Rausky. *Mesmer ou La Révolution Thérapeutic*. Paris: Payot, 1977; René Roussillon. *Du Baquet de mesmer au <<Baquet>> de freud: Une archéologie du cadre et de les pratique psychoanalytiques*. Paris: Presses Universitaires de France, 1992 ; Isabelle Stengers and Leon Chertok. *A Critique of Psychoanalytic Reason: Hypnosis as a Scientific Problem From Lavoisier to Freud*. Trans. Martha Noel Evans. Stanford: Stanford University Press, 1992 [1989]; Alan Gauld, *A History of Hypnotism*. London: Cambridge UP, 1992. 1-38; Adam Crabtree. *From Mesmer to Freud: Magnetic Sleep and the Roots of Psychological Healing*. New Haven: Yale UP, 1993. Some of the documents addressed below appear in Albert Binet and Charles Féré, *Animal Magnetism*. New York: D. Appleton and Co, 1888 [1887].

[xxvi] Shapiro and Shapiro, 151-154, identifies the first use of the term "blind or test experiments" in William Stanley Jevons. *The Principles of Science: A Treatise on Logic and the Scientific Method*. New York: Macmillan, 1874. They note the discontinuous employment of the term over the next 50 years, until the 1930s when Harry Gold began to use the term more systematically. In an oral history, one of Gold's students and subsequent collaborators, Nathaniel Kwit, reports on the inspiration for Gold's usage: "'Where did the idea come from?' After a minute or so he exclaimed, 'I know where we got it! It came from the "Take the Blindfold Test" advertising for Old Gold cigarettes. In this campaign, smokers were asked to compare Old Gold cigarettes with another brand while blindfolded—in other words, blind about which they were smoking. Our design was similar, except that the patients were not blindfolded, so we called it the blind test" (154). This anecdotal account brilliantly situates the contemporary metaphorical adoption of "blind testing" as a recapitulation of this late

eighteenth-century innovation in the technology of “blindfolding” for the sake of “objective” comparison as mediated by the marketing practices of consumer capitalism. What goes around, comes around.

[xxvii] “Rapport Secret sur le Magnétisme Animal, rédigé par Bailly, au nom de la meme commission” C. Burdin Jeune et Fréd Dubois, eds., *Histoire Académique du Magnétisme Animal*. Paris: Chez J.-B. Balliere, 1841. 98.

[xxviii] Stengers, "Le médecin et le charlatan," 136.

[xxix] “Rapport des Commissaires Chargé par le Roi de l’Examen du Magnétisme Animal,” C. Burdin Jeune et Fréd Dubois, eds., *Histoire Académique du Magnétisme Animal*. Paris: Chez J.-B. Balliere, 1841. 52-3. (my emphasis)

[xxx] Rapport des Commissaires, 55.

[xxxi] Rapport des Commissaires, 63.

[xxxii] Rapport des Commissaires, 69.

[xxxiii] James Engell, *The Creative Imagination: Enlightenment to Romanticism*. Cambridge, MA: Harvard UP, 1981. 7.

[xxxiv] Forest Pyle. *The Ideology of the Imagination: Subject and Society in the Discourse of Romanticism*. Stanford, CA: Stanford University Press. 1995. 10.

[xxxv] Pyle, 2.

[xxxvi] Rausky. *Mesmer ou La Révolution Thérapeutic*. 142-3.

[xxxvii] Jacques Roger. *Buffon: A Life in Natural History*. Trans. Sarah Bonnefoi. Ithaca, NY: Cornell UP, 1997. 228-267.

[xxxviii] Georges-Louis Le Clerk de Buffon, *Oeuvres Philosophiques de Buffon*. Ed. Jean Priveteau. Paris: Presses Universitaires de France. 1954. 317.

[xxxix] Buffon, 337.

[xl] Buffon, 337.

[xli] Buffon 337.

[xlii] Jacques Lacan. *Ecrits: A Selection*. Trans. Alan Sheridan. New York: Norton, 1977. 4.

[xliii] Michel Foucault. *The Order of Things: An Archaeology of the Human Sciences*. New York: Vintage, 1970. 318.

[xliv] Rapport des Commissaires, 84.

[xlv] Bruno Latour, *We Have Never Been Modern*. Trans Catherine Porter. Cambridge, MA: Harvard UP, 1993.

[xlvi] Information about the NCCAM can be found on their web site: <http://nccam.nci.nih.gov/>.

[xlvii] Eisenberg DM. Davis RB. Ettner SL. Appel S. Wilkey S. Van Rompay M. Kessler RC. Trends in alternative medicine use in the United States, 1990-1997: results of follow-up national survey. *Journal of the American Medical Association*. 280:18 (Nov 11, 1998):1569-75. See also, the earlier study: Eisenberg DM. Kessler RC. Foster C. Norlock FE. Calkins DR. Delbanco TL. Unconventional medicine in the United States. Prevalence, costs, and patterns of use. *New England Journal of Medicine*. 328:4 (Jan 28, 1993): 246-52.

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