Pain Without Lesion: Debate Among American Neurologists, 1850–1900

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I
Introduction

In his 1887 treatise on spinal irritation, American neurologist William A. Hammond observed that he would endeavour 'not to claim too much for a pathological condition which I am very sure exists, and which I therefore think is entitled to recognition'.[1] The fact that Hammond, who was unquestionably one of the most important physicians in the USA during the latter half of the nineteenth century, begins his exposition by assuring readers that spinal irritation does in fact exist implies his awareness that some members of his intended audience might harbour doubts. Moreover, Hammond's choice of language is critical; he does not assert a nosological claim, that the *disease* of spinal irritation exists, but rather advances a morphological/anatomical claim, that the 'pathological condition exists'. The linking of the disease entity to its pathological condition suggests that the nosological reality is a function of its pathological anatomy. Where a discrete, material lesion exists that can be clinically correlated with a patient's illness complaint, the disease exists and is entitled to recognition. Charles Rosenberg captures this framework when he observes that, by the end of the nineteenth century in the USA, the social legitimacy of disease presumed 'somatic identity'.[2]

The central claim of this paper is that during the late nineteenth century, leading neurologists generally denied the possibility that pain could exist in the absence of material lesion. There is ongoing debate over the medical status of pain sufferers in the mid- to late nineteenth-century West, with some arguing that what we might now term 'chronic pain' became invisible during the period;[3] others assert that physicians of the time were acutely aware of and sensitive to the suffering of their patients from a variety of pain experiences.[4] I argue that these apparently divergent views are both correct. On the one hand, there is little support for the idea that American physicians of the time ignored or trivialized the pain experiences of their patients. Indeed, given the Victorian emphasis on suffering and sympathy, such behaviour would have been especially taboo, at least with regards to socially privileged patients. On the other hand, the fact that American neurologists were aware of and sensitive to their patients' pain does not imply that they

allowed that such pain could exist in the absence of a material (morbid) lesion. I contend that American neurologists followed their European counterparts in repeatedly insisting that if the patient experiences pain, then such a lesion must perforce exist, even if medical techniques of the time simply did not permit discernment of the lesion itself.

There are at least two reasons for my specific focus on neurologists. First, because many of the different experiences of pain without lesion implicated concerns related to the brain and the nervous system, early neurologists often treated nineteenth-century pain sufferers. As the neurologists themselves asserted, the 'seat of disease' for many kinds of pain without lesion was located in the nervous system, and hence was properly deemed within their purview. Second, and related, because so many experiences of pain without lesion implicated the brain and the nervous system, attitudes, practices, and beliefs among early neurologists regarding the mind–body relationship are important areas for investigation.[5]

It is important to delineate at the outset the approach, scope, and justification for this paper. A work of interdisciplinary history, it uses methods primarily drawn from the history of medicine and the intellectual history of objectivity. These tools are significant limiters because pain is a multivalent, dynamic concept that is represented, constructed, and interpreted in myriad ways among diverse communities through a wide array of social practices and rituals. It has occupied the attention of countless writers and scholars in the context of religion and theology, penal reform and social welfare, criminal justice and torture, politics and diplomacy, and rhetoric, to name but a few. Pain lends itself so easily to the realm of figurative language that many historical studies of pain have unsurprisingly tended to literary and cultural historiography.

Yet, for all of this dynamism, there is a paucity of studies located within historiographies of medicine and health that specifically treat pain as the central object of inquiry. There are many reasons for this lacuna, two of the most obvious being first — outside of some well-plumbed exceptions — the general lack of sources across different periods specifically discussing pain in context of medicine, therapeutics, and disease; and second, the sentiment, which is perceptible in widely varied contexts and periods, that pain is simply the by-product of an underlying disease, pathology, or morbid state, and that the latter is what merits attention, the former being simply a sign or symptom.[6] This paper contributes to the ongoing efforts to fill the gap and analyse histories of pain, the sources for which are located principally in contexts of illness, disease, medicine, and therapeutics.

The dearth of extant narrative experiences of pain is one justification for this article's focus on the attitudes, practices, and beliefs of physicians regarding pain. In examining the intellectual constructs through which leading American neurologists understood pain that presented without discernible lesions, there is no intention to minimize or invalidate the patients' experiences. Rather, the assumption is merely that understanding what physicians thought about their patients' pain without lesion is a worthy subject of inquiry in its own right, especially as there is little doubt that the neurologists' conceptions of such pain strongly influenced the nature of the therapies and remedies deployed, including the decision of whether any intervention at all was appropriate. If a physician disbelieved the existence of an underlying disease marked by the patient's pain symptoms, it was far less likely that treatment of any kind would be prescribed. If the disease did not exist, why would clinical interventions be warranted?

To the best of my knowledge, there are no historical analyses focusing on ideas regarding pain without lesion among American physicians of the mid- to late nineteenth century.[7] It is well known that pain is far and away the most common complaint contemporary American patients bring to their physicians; there is little reason to believe that pain was significantly less common an experience for people living in the nineteenth century. The argument, therefore, is that understanding something about the attitudes and beliefs of the physicians treating them merits study. Understanding these attitudes and beliefs in turn requires a basic understanding of the sea-changes in Western allopathic medicine that occurred during the nineteenth century.

II
Pathological Anatomy and the Birth of the Clinic

In *The Birth of the Clinic*, Michel Foucault argues that, at the turn of the nineteenth century, in one of the centres of Western medicine (Paris), a group of scientists and physicians began to formulate a model of health and disease that would come to be called the anatomoclinical method.[8] Foucault's answer to the implicit question in the title of his book (how was the clinic born?) is premised on an understanding of the ideas, conceptions, and conditions that preceded it. To understand the nineteenth-century changes in medical practice, disease, health, and ultimately, in pain, it is necessary to think about earlier conceptions of disease and the body.

Nicholas D. Jewson notes that 'bedside medicine' in the late eighteenth century 'was polycentric and polymorphous […]. Medical knowledge consisted of a chaotic diversity of schools of thought. The definition of the field was diffuse and problematic, disciplinary boundaries weak and amorphous.'[9] Even allowing for such complexity, however, it is not impossible to discern some important themes and patterns among competing medical cosmologies.

In contrast to the emphasis on discrete material lesions featuring prominently in the Paris School of the nineteenth century, earlier healers working in the humoral tradition tended to eschew the importance of material localization in thinking about illness. The 'morbid forces [that caused disease] were located within the context of the total body system rather than any particular organ or tissue' (Jewson, p. 229). Prior to the nineteenth century, prevailing medical cosmologies promoted a holistic conception, one predicated on humoral balance rather than on local pathologies. Physician and historian Robert Martensen notes that 'in a humoral schema, none of the solid tissues of the body were as important as the body's hollow spaces. These spaces contained the humors and humors had physiologic agency.'[10]

The emphasis on the illness sufferer's life-world, on a holistic notion of the interplay between subject and illness, is also evident in humoral understandings of pain. Lisa Wynne Smith's analysis of several sets of eighteenth-century medical consultations confirms the general medical cosmologies attributed here to a humoral schema. The language of pain in these letters 'was extraordinarily descriptive and personal. Humoralism fundamentally shaped sufferers' experience of their bodies, as revealed by descriptions of internal sensations and mind/body overlap.'[11] Specifically,

> suffering had a flexible vocabulary, concurrently describing physical and emotional pains in ways that underscore the anxiety surrounding illness. This emphasizes the extent to which body and mind were inseparable in the early eighteenth century; pain involved one's whole being, both body and soul. Patients and their doctors often referred to emotional states as symptoms. (p. 463)

Thus one early modern physician linked his clinical diagnosis 'with the patient's perceptions, which appear plainly — "sinking at the heart". While it was a physical problem, the term also indicated an emotion when alongside symptoms like "heavy disposition" and "dejection of spirit"' (p. 465).

This early modern linkage of body and soul in context of pain has older roots. Esther Cohen observes that 'all major late medieval discourses on pain — in theology, medicine, and law — viewed "physical" pain as a function of the soul'.[12] Erected primarily on Augustinian foundations, pain was inextricably linked with guilt and fear.[13] Augustine explained the martyrs' lack of pain on this basis: they, like the Virgin Mary herself, did not suffer pain because they were free of guilt and fear: 'The message was clear: pain lay in the soul; it resulted from the soul's sin and guilt, and its awareness of that guilt, of the ensuing retribution, and of the fear thereof' (Cohen, 'Animated Pain', p. 45).

The key point in the humoral conception of pain was the fundamental enmeshment of 'physical' and 'emotional' pain, of mind, body, and soul.[14] Consistent with humoral medical cosmologies, the subjectivity of the patient's lived experiences was inseparable from illness and pain. However, this is not to suggest that the concept of pain in humoral schemes was unproblematic. The connection between expressions of pain and truth challenged persons and communities from the Middle Ages to the early modern period, and the best evidence of this is in the practice of torture.[15] Cohen observes that 'for the physician, expressions of pain led to the truth of illness, and, for the theologian, to the truth of sin and salvation' ('Animated Pain', p. 52). 'Torture was thought to work because of the close relationship between body and soul; the truth of the soul could be forced out through physical pain' (Wynne Smith, p. 467). Writing about the relationship between pain, torture, and truth in early modern France, Lisa Silverman explains that

> truth is lodged in the matter of the body; judges were required to draw it out (*tirer*) or extract it (*arracher*) from the body, just as tears and teeth are drawn. Truth resides in the flesh itself and must be torn out of that flesh piece by piece […]. Pain is […] the vehicle of truth-telling, a distillation of the pure substance lodged in the impure flesh. (Silverman, p. 63)

However, while the interplay between pain, suffering, guilt, and truth are complex and challenging, there is in humoralism a unity between 'physical' pain and mental or emotional experiences such as suffering, guilt, and fear. In comparison, the importance of pathological anatomy to the practice of medicine during the nineteenth century signals a sea-change. Disease began to be conceptualized in a different sense, and a novel medical cosmology predicated on local, discrete entities as the cause of disease began to be not simply studied, but *practised*.[16]

Foucault observes that

> at a very early stage historians linked the new medical spirit with the discovery of pathological anatomy, which seemed to define it in its essentials, to bear it and overlap it, to form both its most vital expression and its deepest reason. [17]

While there is general acceptance among historians that anatomy gradually became more important during the early modern era, it was not until the nineteenth century that it would begin to take on a central role in defining medical practice.[18] Foucault even terms the new method the 'anatomoclinical' method, and his locution remains the norm.

Foucault characterizes this change:

> The appearance of the clinic as a historical fact must be identified with the system of these reorganizations. This new structure is indicated — but not, of course, exhausted — by the minute but decisive change, whereby the question: 'What is the matter with you?', with which the eighteenth-century dialogue between doctor and patient began (a dialogue possessing its own grammar and style), was replaced by that other question: 'Where does it hurt?', in which we recognize the operation of the clinic and the principle of its entire discourse. (p. xvi)

Foucault's point is that the birth of the clinic is linked with the capacity to localize discrete agents of disease to specific places, structures, and tissues inside the body. Whereas prior to the nineteenth century, tissues were far less important than the hollow channels through which humours flowed, this conceptual geography was inverted during the nineteenth century.[19] This inversion shows the importance of pathological anatomy to the birth of clinical method. Indeed, Martensen goes so far as to suggest that 'Western learned medicine's most distinctive knowledge-making feature has been its historic reliance on anatomy' (p. 95). In a particularly revealing passage, Elizabeth Hurren notes the changing conceptions of cadavers in the Oxford anatomy department of the late nineteenth century:

> When the department opened, every body taken for dissection was named, and funeral expenses were recorded individually. After ten years, during which the department expanded, the bodies were no longer named but instead were numbered. Finally, once the department was fully established, each pauper was simply recorded as 'material' or 'subject'. (p. 792)

Hurren concludes that 'at each stage in the development of Oxford's cadaver business, reductionist language evolved. In a literal sense, the poor had become objects of material interest, rather than individual cases' (pp. 792–93).

But the importance of Foucault's analysis extends well beyond a simple explanation of the role of anatomy in shaping modern clinical method. Foucault is interested in medical perception. Anatomy was so important to the birth of the clinic

because of what the investigating, clinical Eye could *see* through such practice. As such, a crucial rhetorical device Foucault uses to explain the birth of the clinic is what he refers to as the 'clinical gaze' that connects lesions and illness complaints. Foucault's conception is not meant to be taken literally; the importance of physically seeing the signs of illness was understood long before the nineteenth century.[20] But the clinical gaze itself did mark something fundamentally distinct from the medical cosmologies that preceded it. As historian Roselyne Ray observes in context of pain,

> at the dawn of the nineteenth century, physicians were looking for a pure sign which would remove the ambiguities inherent in symptoms. They wished to find a sign, the meaning of which would be as certain as that provided by the lesion found at dissection.[21]

Within this context, I now turn to an analysis of how pain without lesion was conceived of among leading neurologists in mid- to late nineteenth-century America. The nineteenth-century changes in medical culture had dramatic effects on the way pain was conceptualized.

III

The Invisibility of Pain

Literature scholar David Morris picks up the Foucauldian interpretation of the birth of the clinic and connects these nineteenth-century changes to pain in context of

> a revolutionary readjustment in the realms of the visible and the invisible. In effect, while a new clinically based scientific medical perception begins to make pain increasingly visible inside the body, pain outside the nervous system and outside the clinic begins to seem correspondingly invisible.[22]

His point is that the focus on tissue pathologies and structural lesions that shaped the anatomoclinical method meant that pain that was not visible inside the body began to vanish from sight. Morris further argues that

> pain […] becomes newly visible and objectified. The physician does not see the pain directly, of course, but the clinical gaze penetrates deep within the body to expose pain's hidden sources and processes. The lesion — illuminated, mapped, and verified — increasingly comes to represent pain as it is made newly visible to the gaze of the physician. As a corollary, what the gaze of the clinic cannot see, cannot verify, and cannot transform into an objectified visible image of pain becomes, so to speak, invisible. (p. 193)

These are provocative claims, made without extensive analysis of primary sources. They have provoked fairly strong reactions among several pain scholars. Noémi Tousignant charges that Morris has 'caricatured the modern medically-dominated view of pain', 'exaggerated the medicalisation of pain', 'overestimated the power exercised by the medical establishment over the definition and the management of pain', and 'oversimplified the medical view of pain'.[23] Psychiatrist Andrew Hodgkiss devotes an entire monograph (*From Lesion to Metaphor*) to the repudiation of Morris's claims regarding visible and invisible pain. Although in large part I accept these criticisms, the analysis that follows shows that the perspectives of Morris and his critics can in fact be reconciled. Nineteenth-century American neurologists did not trivialize or invalidate their (socially privileged) patients' pain; nevertheless, the idea that pain could exist in the absence of a discrete, material lesion becomes increasingly untenable over the course of the long nineteenth century.

The first step to understanding how this reconciliation is possible is assessing the impact of the specificity theory as to pain, a theory that was connected to developments in experimental physiology and electricity. Many nineteenth-century physicians and scientists discussed the potential and capacity of electricity to treat various kinds of pain.[24] Some of the most significant conceptual work regarding electrophysiology was done by Johannes Müller, whose findings were also critical to the conceptualization of pain during the nineteenth century. His discovery of the specialization of nerve fibres and the electrochemical conduction of signals is crucial because it facilitated the development of the specificity theory with regard to pain.[25]

The specificity theory is not one account, but is rather a general framework for the physiology of the nervous system. In its most basic form, the idea is that specific nerve fibres respond to specific stimuli and convey particular sensations related to the stimulus. This means that the application of cold, heat, and pain result in the activation of certain nerve fibres, but not others (Ray, pp. 192–201). In addition to research on the sensory specificity of nerve fibres, French physiologists François Magendie and Claude Bernard emphasized the distinction between the specific control of the motor function of the spinal nerves' anterior roots and that of the sensory function of its posterior roots (Ray, pp. 182–83). American neurologist John Call Dalton observed that

> it is evident that the impressions of sensibility pass to the nervous centres exclusively by the posterior roots [of the spinal nerves], while the stimulus

> which excites the muscles to contraction is conveyed only by the anterior roots. We therefore have a separate localization of sensation and motion in this part of the nervous system; and it is easy accordingly to understand how one may be impaired without injury to the other. [26]

Similarly, in an early treatise on 'spinal irritation', which, as we shall see, was a topic of great interest to leading late nineteenth-century American neurologists, Philadelphia physician Isaac Parrish cites the efforts of several notable European scientists to clarify the pathways through which the pain of spinal irritation proceeds. Lauding anatomist Xavier Bichat,[27] surgeon-anatomist Charles Bell, and Magendie, he notes that

> these authors have taught us to consider the nervous system not as homogeneous tissue, possessing an identity of structure and function […] but as composed of separate parts, differing essentially from each other, both in their functional actions, and anatomical character.[28]

Decades after Parrish's writing, the links between electricity, lesion, and localization had become entrenched; H. Lewis Jones reports in the July 1899 issue of *The Practitioner* that 'the crispness with which the localisation of the nerve lesion is brought out by the electrical test is full of charm'.[29] Corning's 1890 treatise on neuralgic pain contains two chapters on the use of electricity in localizing and treating pain, and his 1894 treatise on headache evidences a similar treatment.

Unsurprisingly, then, the single most important facet of the specificity theory as to pain is the implication that it was generally localizable. Thus in describing neuralgia, which Corning defined as pain due to 'extra-cranial causes', he notes the appearance of 'painful spots' which are 'present in the majority of cases of neuralgia', and about which 'careful digital exploration will rarely fail to result in their accurate localization'.[30] In late nineteenth-century discussions on neurology and pain, the concept of localization generally does not refer to the notion that an impression or sensation is caused by a nerve that exists proximal to the area in which the sensation is experienced. Rather, what is usually meant by 'localization' is the idea, quite foreign to humoral theory, that the material pathology causing the sensation is *localizable* to a discrete, specific point or area within the inner body.

Historian Timo Kaitaro traces one of the earliest examples to a paper authored by physician Jean-Baptiste Bouillaud in 1825, the title of which is translated as 'Clinical studies demonstrating that the loss of speech corresponds to a lesion in the anterior lobules of the brain and to confirm the opinion of Mr. Gall on the seat of articulated language'.[31]

Bouillaud is focused on the specific area of the brain in which a lesion produces the observed sign, the 'seat' of the function of language. The lesion is not local, but is localizable to the 'anterior lobules'. Kaitaro suggests that even 'different words could have separate localizations in the cortex' under Bouillaud's rubric.[32]

A half-century after Bouillaud, Broca, and Wernicke's investigations provided further proof of the merits of cerebral localization. Historian Noga Arikha uses the term 'locationism' to describe their attempts to correlate discrete material pathology with an observed sign (p. 261). This term further supports the idea that the term 'localization' in late nineteenth-century neurological texts on pain refers not to the proximity of the material pathology, but to the fact that such a pathology exists at a discrete location inside the body. Similarly, the fact that physicians of the time were well aware that gross cerebral lesions were capable of producing certain kinds of pain is consistent with this concept of localization.[33] This is because the attribution of pain to cerebral lesions links the symptom itself to a specific tissue pathology.

This is why Foucault's characterization of clinical medicine centres on medical perception: what did the clinical Eye perceive? What did it project as causing illness? Furthermore, causal attributions of disease are a significant window into social, cultural, and political beliefs.[34] That nineteenth-century physicians seemed to attribute many kinds of pain to disturbances in relevant tissues, whether 'irritation' of the nerves as in spinal irritation and neuralgia, or to cerebral lesions, as in some forms of headache, is important for what it indicates regarding the meaning of pain.[35]

Given the significance of pathological anatomy to nineteenth-century medical thought, it is unsurprising that nineteenth-century neurologists found pain caused by gross lesions easy to diagnose (though not necessarily easy to treat).[36] This is at least in part because gross cerebral lesions tended to produce a number of other symptoms that contributed to the differential diagnosis, including 'progressive loss of muscular power, vertigo, visual impairment and derangement of the faculty of recollection'.[37] But what of pain that tended to occur in the absence of discoverable lesions? Corning observes in two of his texts that 'organic disease is by no means as frequent a cause of headache as might be imagined from the percentage of gross cerebral lesions'.[38] How did leading neurologists conceive of pain without lesion during this period?

If one understands the term 'lesion' as more than the gross cerebral lesions that physicians had long known of, then the best answer is that leading neurologists did not

conceive of it at all. This is certainly not to suggest that nineteenth-century American physicians were ignorant of pain without lesion, nor that they trivialized it.[39] Indeed, there is little support in virtually any primary sources for the proposition that physicians typically invalidated their patients' pain.

However, this observation must be qualified: it is socially privileged patients whose pain was more likely to be legitimized and acknowledged. Like most forms of medical care, nineteenth-century regard and treatment for pain was distributed according to a number of different social strata, including class, race, age, gender, occupation, and other indicia of social status and hierarchy. Thus, for example, Martin Pernick pointed out over a generation ago that a complex moral calculus governed the dispensation of analgesia in nineteenth-century America, and predictably, that members of marginalized groups in American society (for example, African-Americans and the poor) were less likely to be administered analgesia.[40] Furthermore, while it is generally correct to note that socially privileged patients' pain was not ignored by nineteenth-century physicians in either Europe or in the USA, there are well-documented exceptions, such as the case of railway spine or spinal concussion. In both Great Britain and the USA, many physicians and neurologists rejected injured workers and railway passengers' complaints of injury following railway accidents.[41]

But even with these qualifications, the general proposition that nineteenth-century neurologists did not ignore or trivialize their socially privileged patients' pain is generally correct. However, the claim Morris advances is that pain without lesion becomes invisible during the nineteenth century. A number of leading nineteenth-century physicians and neurologists suggested that even pain which seemed to appear in the absence of any lesions must nevertheless feature such lesions. As an object of inquiry, then, pain without pathology in some kind of tissue ceases to exist in the clinical gaze.

One of the best sources for locating this view is Hammond's treatise on spinal irritation. Hammond was one of the progenitors of American neurology and the founder of the American Neurology Association.[42] His views on pain without lesion are therefore particularly important. Nineteenth-century physicians were quite aware of the existence of pain that seemed to persist in the absence of any identifiable lesion. Accordingly, Hammond has no patience for those who reject the disease known as 'spinal irritation':

> It must be admitted that there are not wanting those who refuse to believe in the existence of such a disorder. Such persons must necessarily belong to one

> or the other of the following categories: Their experience must have been very limited, and therefore they cannot see; or they must have been endowed either with restricted powers of observation or with minds so constituted as to cause them wilfully to close their eyes to the facts that they did not care to see. (*Spinal Irritation*, p. 19)

In referring to those who 'cannot see', who have 'restricted powers of observation', and who 'close their eyes to the facts that they did not care to see', Hammond emphasizes the power of clinical sight in validating spinal irritation.[43] Yet, the fact that Hammond undoubtedly believed in the existence of spinal irritation does not imply that he countenanced the existence of pain without any material pathology.

According to Hammond, the general cause of spinal irritation is anaemia of the spinal cord, which in late nineteenth-century terminology generally translated as 'weakness' of some sort.[44] However, in spite of his acknowledgment that anatomical work revealed no gross lesions or pathologies that would account for the pain of spinal irritation, Hammond did not hesitate to localize the causes of such pain to lesions in various regions of the spinal cord:

> The spinal cord is a long organ, and while one part may be the seat of anemia of the posterior columns, the others may be comparatively healthy. It will be shown, however, that the differences in the symptoms as manifested in the various cases which come under notice, are in the main such as result from the fact that different sections of the posterior columns of the cord are the seats of the lesion. (*Spinal Irritation*, p. 29)

This excerpt also demonstrates the work that the concept of localization performs in Hammond's medical cosmology; the issue is not whether the material pathology exists, but is simply where the lesion can be localized. Later in the treatise, Hammond explains why he conceptualizes the causality of spinal irritation in terms of lesions that pathological anatomy does not reveal:

> Owing to the fact that spinal irritation is not *per se* a fatal disease, we rarely have the opportunity to verify any views we may hold in regard to its pathology. In the few cases in which post-mortem examinations were made nothing abnormal was found, a circumstance, however, far more compatible with the idea I have expressed than with any other.
>
> In all cases in which the patho-anatomy of a disease cannot be positively ascertained, we are warranted in constructing a hypothesis of its real nature from such data as is at our command. It is better to do this, even if the view we enunciate is not absolutely sufficient to account for all the observed phenomena, than to shut up our opinions in our own minds, or, worse still, form none whatever. (p. 53)

The chain of reasoning here is significant. Hammond begins by noting that because spinal irritation is not fatal — and post-mortem is therefore impossible at the moment — there is no sure way to link tissue pathologies with the pain. This underscores the connection between pathological anatomy and clinical method that Foucault and Martensen emphasize. Hammond moves on to admit that even where post-mortems have been conducted, they have failed to reveal any obvious pathologies that might cause the disease. However, not just in this case, but in 'all cases' in which correlation of disease and pathological anatomy is unavailing, it is appropriate to construct a hypothesis of the 'real nature' of the disease. Although Hammond does not expressly say so, there is little doubt that the 'real nature' of spinal irritation is a reference to the specific lesion to which he attributes causation. In fact, Hammond notes that some do not accept his general theory of anaemia in the spinal cord as the general cause, to which he responds by defending the general notion of pathological localization:

> And what is true of the spinal cord is true of other organs of the body. There is not one which may not be the seat of a morbid process in some exceedingly limited part, while the remainder of its tissue presents no evidence of disease. Indeed, the reverse is the exceptional condition. (p. 57)

As such, the general failure to locate the lesion that causes spinal irritation at post-mortem does not imply its non-existence. On the contrary, given the localization of lesions, it is likely that the seat of disease exists at some specific region in the spinal cord or central nervous system.

Thus, Hammond's argument is that the seat of spinal irritation is localizable in a lesion that exists somewhere in the spinal cord, but whose precise location and character has not yet been ascertained. Hammond confirms this:

> From all these points it appears to me that the pathology of spinal irritation is as clearly made out as that of any other disease in which we do not have the opportunity of making post-mortem examinations, or in which, having such opportunities, the lesion remains undiscovered. (pp. 67–68)

The power of the lesion in the construction of pain is such that the possibility that pain might exist without a lesion is not tenable for Hammond. This does not mean that Hammond denies the existence of spinal irritation; it does mean that he denies the existence of a disease entity named 'spinal irritation' without a concomitant tissue pathology of some sort. Hammond even extends the analogical nature of his argument to anatomy, noting that

> upon the principle of exclusion we are justified in assuming the patho-anatomical feature to be anemia. There is no other known condition which could give rise to the phenomena. The symptoms of other affections of the spinal cord are well known, and are for the most part exceedingly definite in their indications. The alterations in the nerve structure, to which they are due, are easily detectable after death, and hence groups of symptoms are readily associated with well-known lesions. (pp. 58–59)

Hammond does not admit the possibility that no pathological anatomy might correlate with the pain produced by spinal irritation. Accordingly, there is for him no such clinical entity as pain from spinal irritation that cannot be located in a tissue pathology. Moreover, Hammond's preferred remedies follow the principle of localization as well; he lauds the efficacy 'of counter-irritants to the skin over the affected region of the cord' (p. 61). Similarly, Parrish notes (decades earlier) in his 1832 discussion of spinal irritation that 'many chronic nervous disorders have a local and determinate seat in some portion of the spinal marrow or great sympathetic ganglia, and hence that these obstinate diseases are most effectually treated by applications directed to spinal column'.[45]

As historian Bonnie Ellen Blustein points out, however, Hammond was a particularly committed reductionist as to the role material structure played in defining illness.[46] Thus, if Hammond's views on pain without lesion are isolated, that may diminish the strength of the claim regarding the power of the visible lesion in late nineteenth-century American neurological discourse on pain. As it turns out, Hammond's views were typical. His account of pain without lesion — that it in fact is pain *with* (undiscovered) lesion — appears throughout nineteenth-century American texts on pain. In his 1854 dissertation on neuralgia (for which he was awarded the Fiske Fund Prize Essay by the Rhode Island Medical Society), Brown University physician Charles Parsons notes that 'neuralgia may have its origin in the nervous centers'.[47] He declines to specify 'all the affections of the brain or spinal cord' that may cause neuralgia, but observes among the many potential causes of neuralgia several familiar possibilities (p. 424). These include disorder within both anterior and posterior branches of spinal nerves, disorder in an internal organ, cerebral 'congestion', and anaemia (pp. 417–46). All of these, of course, represent pathology within a material structure or tissue which produces pain.

Similarly, neurologist Edward Payson Hurd begins his 1890 treatise on neuralgia by setting forth that the 'cause [of pain] is generally an abnormal modification of some part of a nerve of sensation'.[48] Hurd identifies as exciting causes the usual suspects,

including inflammation, anaemia, and tumours or other 'foreign bodies' that compress the nerve (p. 1). Note that Hurd, like many American physicians and scientists who considered the problem of pain without lesion, freely admitted that 'we know very little about the material alterations which attend neuralgia' (p. 7). As with Hammond, however, this does not prevent Hurd from attributing as a cause for 'neuralgic hyperasthesia', or excessive and painful sensitivity, 'intrinsic and primary modifications of the excitability of the nerve itself in some part of its tract from the gray nucleus of its origin to its terminal expansions' (p. 12). In other words, the material modification *must* exist somewhere along the nerve fibre itself, even if the state of the art does not permit specification of the precise pathology.

As I have suggested, late nineteenth-century neurologists were acutely aware of the difficulties presented by pain without lesion. Thus, in the preface to his treatise *On Common Forms of Functional Nervous Diseases* (1880), Leopold Putzel, a physician at Bellevue Hospital in New York City, observes that 'pathological anatomy has exercised such an enormous influence upon the advances made in practical medicine within the last twenty-five years that many pathologists sneer at the term "functional" diseases'.[49] However, perhaps because he is aware of the extent of that influence, Putzel hastens to add that 'we fully agree that there can be no morbid manifestations without a change in the material structure of the organs involved' (p. v). This illustrates that insofar as the term 'lesion' is understood in the nineteenth-century sense as material alteration/pathology in some kind of tissue or internal structure, pain without lesions ceases to exist. The only question is whether it was discoverable via the prevailing state of the art, as Putzel went on to note:

> We are nevertheless fully convinced, in view of the fruitless search of pathological anatomists, that the diseases which we have considered in this work present no primary anatomical changes which are visible to the naked eye or to the microscope — in other words, that the changes in structure are of a molecular nature. (p. v)

Again, following a similar path of reasoning as virtually every physician referred to in this article, Putzel begins by noting that pathological anatomy has not revealed the lesion that causes nervous disorders (which includes neuralgia), but that such lesions perforce exist. Along the same lines as Putzel, neurologist Landon Carter Gray notes his frustration with the panoply of opinions regarding the pathology of neuralgic pain:

> A great deal of energy has been spent in discussion as to whether neuralgia is due to changes in the central cells of the sensory nerves, in the nerve-fibres themselves, or in the end-organs […]. It is useless to go into these differences of opinion, because they are entirely speculative, with scarcely a respectable fact to prop any one of them up. The truth of the matter is, that we do not know of the molecular changes which constitute neuralgia, and we shall never know until we have instruments delicate enough to enable us to dip down into a living cell of cord or skin and have a microscopic view of molecular life.[50]

Putzel and Gray's emphasis on the technical gaps preventing *visibility* of the lesions presages the importance of the subsequent use of medical imaging techniques in illuminating features of the inner body that were previously undiscoverable — X-rays, electroencephalography, tomographic techniques, and, of late, fMRI.

What these sources demonstrate regarding the notion of pain without lesion is its incoherence. Severe chronic pain most certainly 'existed' in the eyes of these healers, and the general humanitarian impulse of the nineteenth century prompted widespread social and cultural concern with pain and suffering itself.[51] The key point is neither that pain without lesion was ignored or trivialized nor that American physicians failed to appreciate the depth of their patients' suffering. Rather, the crucial point is the link between material tissue pathology and pain. That chronic, intractable, difficult pain could exist without lesion as a primary causal factor was untenable, so much so that leading American neurologists were prepared simply to assume the existence of a lesion in a specific location in the body. Pain itself becomes a material problem, in the sense that its existence seemed to be predicated on the existence of a localized tissue pathology that causes the pain.

I have argued in this paper that many primary American sources do support Morris's claims regarding the disappearance of pain without lesion from the clinical gaze during the late nineteenth century. Hodgkiss, however, vigorously disputes Morris's arguments. Accordingly, assessing his arguments is an important means of pressing the merits of my perspective further.[52] Hodgkiss attributes to Morris a version of 'social constructionism' in the latter's belief that pain is 'constructed as much by social conditions as by the structure of the nervous system' (p. 8). Hodgkiss argues that because the 'clinical picture and prevalence of lesionless pain is rather historically invariant, the position falls' (p. 8). In turn, by 'historical invariance' Hodgkiss apparently means that from the inception of the anatomoclinical method, scientists and physicians were aware of and concerned with the problem of lesionless pain.

There are a number of problems with Hodgkiss's argument. First, there is widespread agreement among pain scholars, regardless of their discipline, that social and cultural conditions deeply influence pain experience.[53] Moreover, it is well settled that pain varies across all manner of demographic indicia including but not limited to culture, age, class, race, and gender. David Resnik, Marsha Rehm, and Raymond Minard observe that 'cultural beliefs, social groups, and religious traditions can play an important role in the response to pain by affecting how we interpret and attend to pain'.[54] The pain physician who does not take the social context of their patient's lives into account is contravening basic practices of pain medicine.[55] Accordingly, if maintaining that social conditions deeply shape and influence pain experiences renders one a strong social constructionist, then we are all strong social constructionists.

Second, Hodgkiss is operating under a confused notion of both social constructionism and historical invariance. The fact that nineteenth-century scientists and physicians were aware of the challenges posed by lesionless pain does not imply they perceived it as equivalent to pain resulting from gross lesions. Indeed, Hodgkiss's own evidence demonstrates precisely how many influential nineteenth-century European physicians, like their American counterparts, viewed the possibility of pain without lesion as untenable.

Hodgkiss notes that 'one very telling assumption in [surgeon Benjamin] Brodie's thought is that any lesion anywhere in the body will do to account for an otherwise inexplicable pain' (p. 59). Obviously, then, Brodie was aware of the problem of lesionless pain, but just as obviously, he continually sought to explain it by virtue of the existence of some lesion located anywhere in the body. This hardly qualifies as evidence in favour of Hodgkiss's claim that the focus on the importance of the visible lesion in conceptualizing pain is mistaken. Quite the contrary, it seems to support the argument.

Similarly, in describing surgeon Joseph Swan's willingness to attribute a patient's severe pain over eleven years to a minor structural lesion of a digital nerve, Hodgkiss acknowledges that

> it seems perverse to us that Swan should be satisfied with a trivial lesion of a digital nerve as an explanation for a decade of multiple, disabling pains all over the body. But what was at stake for him were the tenets of a new anatomoclinical method. The whole thrust of this programme was to match symptom and lesion, even if the lesion was at a distance from the pain and the pain was out of all proportion to the lesion. (p. 63)

This too seems to buttress Morris's and my argument. Swan was so determined to corroborate the objectifying tendencies of the anatomoclinical method that he was willing to ascribe virtually any pain symptoms to virtually any lesion. This demonstrates the power and importance of matching illness and symptom to visible pathology, which is exactly how Foucault, Morris, and I depict the focus of the anatomoclinical method.

This pattern continues in Hodgkiss's account across a variety of scientists and physicians. He notes that in lectures published in 1863, Professor of Anatomy and Surgery Joseph Hilton 'did not entertain the possibility of pain without structural lesion' (p. 65). An 1855 autopsy of a woman diagnosed with hysteria displayed apparent spinal abnormalities, which Hodgkiss deems 'an example of how the developing field of neurology was shrinking the category of hysteria by way of its ever more impressive clinico-pathological correlations' (p. 116). In lectures published in 1863, University College London Professor of Surgery John Erichsen insisted that many persons suffering disabilities after railway accidents had incurred physical damage to the spine. Though 'he acknowledged that the spinal cord was "without serious lesion" in such cases, [he] argued that "molecular changes in its structure" must be present'.[56] Finally, Charcot maintained that for any report of pain, 'a dynamic lesion was present in the cortical domain corresponding to the region of the body implicated by the patient's ideas'.[57]

Ultimately, much of the evidence Hodgkiss cites supports Morris's (and my) claim that while pain without lesion was neither ignored nor trivialized, the possibility that severe and persistent pain could exist without a correlative pathology in some material structure in the body, be it brain, nervous system, organ, or other, was simply untenable.

IV
Conclusion

In this paper, I have offered one possible means of resolving the historical debate regarding the medical status of persons experiencing pain without lesion in mid- to late nineteenth-century America. The dispute has centred on the question of whether pain without lesion became invisible during this period. I have argued that there is a very real sense in which pain without lesion ceased to exist; namely, the idea that pain could exist in the absence of a discrete, material pathology became increasingly untenable during the long nineteenth century. This interpretation differed from earlier constructions of pain in

therapeutic contexts, in which solid entities were far less important than humoral flows, and their responsiveness to the myriad predisposing conditions that reflected the patient's subjective life and social contexts. My reading accommodates the notion that, at least as to socially privileged patients, American physicians neither trivialized nor ignored those patients' experiences of pain without lesion. They regarded the pain as quite real and as meriting remediation of some kind even as they rejected the very idea that the pain itself could exist in the absence of an antecedent lesion.

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[1] William A. Hammond, *Spinal Irritation* (Detroit: Davis, 1886), p. 19.

[2] Charles E. Rosenberg, 'Contested Boundaries: Psychiatry, Disease, and Diagnosis', *Perspectives in Biology and Medicine*, 49 (2006), 407–24.

[3] For example, David Morris, 'An Invisible History of Pain: Early 19th-century Britain and America', *Clinical Journal of Pain*, 14 (1998), 191–96.

[4] For example, Noémi Tousignant, 'Pain and the Pursuit of Objectivity: Pain-Measuring Technologies in the United States *c*. 1890–1975' (unpublished doctoral thesis, McGill University, 2006); Marcia Meldrum, 'A Capsule History of Pain Management', *Journal of the American Medical Association*, 290 (2003), 2470–75.

[5] Time and space preclude discussion of mind–body dualism in late nineteenth-century American neurology in this essay. I mention it here as a way of justifying the focus on neurologists.

[6] For the exceptions, see, for example, the literature surrounding Frances Burney's 1811 account of her mastectomy: Sangeeta Mediratta, 'Beauty and the Breast: The Poetics of Physical Absence and Narrative Presence in Frances Burney's Mastectomy Letter (1811)', *Women: A Cultural Review*, 19 (2008), 188–207; Julia L. Epstein, 'Writing the Unspeakable: Fanny Burney's Mastectomy and the Fictive Body', *Representations*, 16 (1986), 131–66.

[7] There is one in-depth analysis of pain without lesion in the nineteenth-century West, authored by Andrew Hodgkiss: *From Lesion to Metaphor: Chronic Pain in British, French, and German Medical Writings, 1800–1914* (Amsterdam: Rodopi, 2000). Hodgkiss's monograph is an important contribution, and one I shall discuss in some detail in this paper, but his analysis is limited in geographic scope to Europe.

[8] There exists controversy over the extent to which the changes at issue here occurred uniquely in Paris, or whether antecedent and similar contemporary developments occurred in England of the time. See, for example, Othmar Keel, 'Was Anatomical and Tissue Pathology a Product of the Paris Clinical School or Not?', in *Constructing Paris Medicine*, ed. by Caroline Hannaway and Ann F. La Berge (Amsterdam:

Rodopi, 1998), pp. 117–84. This debate is not material to my analysis because the subject of my inquiry is the ideas that arise out of the Paris School. Insofar as the analysis of these ideas and their import herein is accurate, it makes little difference whether they originated 'exclusively' in Paris, or else developed previously or contemporaneously in Edinburgh, Berlin, Vienna, etc. Thus, as Russ Maulitz notes, the claim is not that 'the French were *sui generis* […]. What Paris did was to offer a particular convergence of tissue emphasis, lots of bodies (though […] not the first), lots of schools (though not the first), and physical diagnosis' (personal email communication, 11 September 2012). The seminal analysis of the impact of the Paris School on American physicians is John Harley Warner, *Against the Spirit of the System: The French Impulse in Nineteenth-Century Medicine* (Baltimore: Johns Hopkins University Press, 2003).

[9] Nicholas D. Jewson, 'The Disappearance of the Sick-Man from Medical Cosmology, 1770–1870', *Sociology*, 10 (1976), 225–44 (p. 227). Rosenberg terms this essay an 'influential, if categorical' effort: Charles E. Rosenberg, *Explaining Epidemics and Other Studies in the History of Medicine* (Cambridge: Cambridge University Press, 1992), p. 267.

[10] Robert L. Martensen, *The Brain Takes Shape: An Early History* (Oxford: Oxford University Press, 2004), p. 13.

[11] Lisa Wynne Smith, '"An Account of an Unaccountable Distemper": The Experience of Pain in Early Eighteenth-Century England and France', *Eighteenth-Century Studies*, 41 (2008), 459–80 (p. 463).

[12] Esther Cohen, 'The Animated Pain of the Body', *American Historical Review*, 105 (2000), 36–68 (p. 42). Cohen expands on these themes in her recent book on the same subject: Esther Cohen, *The Modulated Scream: Pain in Late Medieval Culture* (Chicago: University of Chicago Press, 2010).

[13] Cohen, 'Animated Pain'; and Mitchell B. Merback, *The Thief, the Cross, and the Wheel: Pain and the Spectacle of Punishment in Medieval and Renaissance Europe* (Chicago: University of Chicago Press, 1999).

[14] A number of recent studies of pain in the early modern era have emphasized the general and easy linkage between concepts of physical and emotional pain. See, for example, Hannah Newton, *The Sick Child in Early Modern England, 1580–1720* (New York: Oxford University Press 2012); Hannah Newton, 'Children's Physic: Medical Perceptions and Treatment of Sick Children in Early Modern England, *c*. 1580–1720', *Social History of Medicine*, 23 (2010), 456–74; *The Sense of Suffering: Constructions of Physical Pain in Early Modern Culture*, ed. by Jan Frans van Dijkhuizen and Karl A. E. Enenkel (Leiden: Brill, 2008).

[15] Wynne Smith; Silvia de Renzi, 'Witnesses of the Body: Medico-Legal Cases in Seventeenth-Century Rome', *Studies in History and Philosophy of Science*, 33 (2002), 219–42; Cohen, 'Animated Pain'; Cohen, *The Modulated Scream*; Lisa Silverman, *Tortured Subjects: Pain, Truth, and the Body in Early Modern France* (Chicago: University of Chicago Press, 2001); Merback.

[16] A thesis of Jewson's in 'The Disappearance of the Sick-Man'.

[17] Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception*, trans. by A. M. S. Sheridan (New York: Vintage Books, 1994), pp. 114–15.

[18] In England, the Medical Act of 1858 required two years of study in human anatomy as a prerequisite for a licence to practise either medicine or surgery. See Elizabeth Hurren, 'Whose Body is it Anyway: Trading the Dead Poor, Coroner's Disputes, and the Business of Anatomy at Oxford University, 1885–1929', *Bulletin of the History of Medicine*, 82 (2008), 775–818.

[19] The concept of flows itself was central to the humoral conception of illness. See Alicia Rankin, 'Duchess, Heal Thyself: Elisabeth of Rochlitz and the Patient's Perspective in Early Modern Germany', *Bulletin of the History of Medicine*, 82 (2008), 109–44; Noga Arikha, *Passions and Tempers: A History of the Humours* (London: Harper Perennial, 2008); and Martensen.

[20] See, for example, Faith Wallis, 'Signs and Senses: Diagnosis and Prognosis in Early Medieval Pulse and Urine Texts', *Social History of Medicine*, 13 (2000), 265–78; Claudia Stein, 'The Meaning of Signs: Diagnosing the French Pox in Early Modern Augsburg', *Bulletin of the History of Medicine*, 80 (2006), 617–48; Rankin; Wynne Smith; and Martensen.

[21] Roselyne Ray, *The History of Pain*, trans. by Louise Elliott Wallace, J. A. Cadden, and S. W. Cadden (Cambridge, MA: Harvard University Press, 1993), p. 99.

[22] David Morris, 'An Invisible History of Pain', p. 193.

[23] Noémi Tousignant, 'Pain and the Pursuit of Objectivity', p. 53.

[24] See Silas Weir Mitchell, *Injuries of Nerves and their Consequences* (Philadelphia: Lippincott, 1872) and Wilhelm Heinrich Erb, *Handbook of Electro-Therapeutics* (New York: Wood, 1883). Along with Hammond and neurosurgeon W. W. Keen, Mitchell completes the triumvirate most influential in shaping the early history of neurology in the USA. Of the three, this essay primarily examines Hammond's work on spinal irritation. Yet among them Mitchell was probably most interested in pain, and he spent a great deal of time caring for and documenting the pain complaints of American Civil War veterans who had undergone amputations. He famously narrated some of their stories in the canonical and pseudonymous short story, 'The Mysterious Case of George Dedlow'. An ongoing phase of my overall research project delves into Mitchell's work on phantom limb pain as a means of further evaluating the claims issued herein.

[25] Ray, *The History of Pain*, pp. 132–260.

[26] John Call Dalton, *A Treatise on Human Physiology* (Philadelphia: Lea, 1871), p. 414.

[27] On Bichat, Foucault notes that '[he] is strictly an analyst: the reduction of organic volume to tissular space is probably, of all the applications of analysis, the nearest to the mathematical model yet devised. Bichat's eye is a clinician's eye, because he gives an absolute epistemological privilege to the surface gaze' (p. 124). For a detailed analysis of Bichat's role in the history of pathological anatomy, see Russell C. Maulitz, *Morbid Appearances: The Anatomy of Pathology in the Early Nineteenth Century* (Cambridge: Cambridge University Press, 1987).

[28] Isaac Parrish, 'Remarks on Spinal Irritation as Connected with Nervous Diseases; With Cases', *American Journal of Medical Sciences*, 20 (1832), 293–314 (p. 294).

[29] H. Lewis Jones, 'Notes from the Electrical Department, St. Bartholomew's Hospital', *The Practitioner*, 63 (1899), p. 258.

[30] James Leonard Corning, *A Treatise on Hysteria and Epilepsy, with Some Concluding Observations on Insomnia* (Detroit: Davis, 1888), p. 64.

[31] Timo Kaitaro, 'Biological and Epistemological Models of Localization in the Nineteenth Century: From Gall to Charcot', *Journal of the History of Neuroscience*, 10 (2001), 262–76 (p. 263).

[32] Kaitaro, p. 266. While it is of course true that localization of function is not equivalent to localization of pathology, the difference is not significant for my purposes insofar as my thesis turns on the somaticization of illness complaints. In the case of function, what matters is the idea that function is localized to a discrete, material object inside of the subject. An identical or at least closely related idea animates the emphasis on discrete, material pathology for the patient.

[33] See, for example, James Leonard Corning, *A Treatise on Headache and Neuralgia, Including Spinal Irritation and A Disquisition on Normal and Morbid Sleep,* 3rd edn (New York: Treat, 1894); William R. Gowers, *Neuralgia: Its Etiology, Diagnosis, and Treatment* (New York: Wood, 1890); James Grant Gilchrist, *Surgical Emergencies and Accidents* (Chicago: Duncan Brothers, 1884); and William A. Hammond, *On Certain Conditions of Nervous Derangement* (New York: Putnam's Sons, 1881).

[34] See Ulla Räisänen and others, 'The Causation of Disease — The Practical and Ethical Consequences of Competing Explanations', *Medicine, Health Care, and Philosophy*, 9 (2006), 293–306; Sylvia N. Tesh, 'Miasma and "Social Factors" in Disease Causality: Lessons from the Nineteenth Century', *Journal of Health Politics, Policy and Law*, 20 (1995), 1001–24; Christopher Hamlin, 'Predisposing Causes and Public Health in Early Nineteenth-Century Medical Thought', *Social History of Medicine*, 5 (1992), 43–70; and Sylvia N. Tesh, *Hidden Arguments: Political Ideology and Disease Prevention Policy* (New Brunswick: Rutgers University Press, 1988).

[35] For spinal irritation and neuralgia, see Corning, *A Treatise on Headache and Neuralgia,* 3rd edn, and Hammond, *Spinal Irritation*; for cerebral lesions, see Corning, *A Treatise on Headache and Neuralgia*, 3rd edn.

[36] Corning, *A Treatise on Headache and Neuralgia*, 3rd edn; Mary Putnam Jacobi, *Essays on Hysteria, Brain Tumor, and Some Other Cases of Nervous Disease* (New York: Putnam's Sons, 1888); and David Ferrier, *The Localisation of Cerebral Disease: Being the Gulstonian Lectures of the Royal College of Physicians for 1878* (New York: Putnam's Sons, 1879). For a recent history of Jacobi with an emphasis on her role in the discourse regarding the propriety of women physicians, see Carla Bittel, *Mary Putnam Jacobi and the Politics of Medicine in Nineteenth-Century America* (Chapel Hill: University of North Carolina Press, 2009).

[37] Corning, *A Treatise on Headache and Neuralgia,* 2nd edn (New York: Treat, 1890), p. 52.

[38] Corning, *A Treatise on Headache and Neuralgia,* 2nd edn, p. 53; and *A Treatise on Headache and Neuralgia*, 3rd edn, p. 85.

[39] Marcia Meldrum, 'A Capsule History of Pain Management', *Journal of the American Medical Association*, 290 (2003), 2470–75; and Hodgkiss. Indeed, physicians frequently distinguished between organic and functional disorders, the latter consisting of a cluster of illness complaints for which the

structural lesion could not be located. Physicians who subscribed to such a distinction hardly denied the existence of the very complaints that grounded said distinction.

[40] Martin S. Pernick, *A Calculus of Suffering: Pain, Professionalism and Anesthesia in Nineteenth-Century America* (New York: Columbia University Press, 1985). Famously, part of the reason J. Marion Sims conducted his experiments regarding a surgical intervention for vesicovaginal fistula on African-American slave women was due to his belief that the slaves had much lower sensitivity to pain than his white patients.

[41] Why such cases were regarded by physicians on both sides of the Atlantic Ocean so differently from other kinds of pain complaints is a fascinating and important question, one that the next phase of my current project sets out to examine in more detail.

[42] As Surgeon General for the Union during the Civil War, Hammond also directed some of the efforts at sanitarian reforms during the War that presaged the many postbellum public health reforms. See Bonnie Ellen Blustein, *Preserve Your Love for Science: Life of William A. Hammond, American Neurologist* (Cambridge: Cambridge University Press, 2002); and William A. Hammond, *A Treatise on Hygiene with Special Reference to the Military Service* (Philadelphia: Lippincott, 1863).

[43] Following Charcot, most nineteenth-century neurologists conceded that indiscernible lesions existed. The issue, however, was always the technical or epistemic inability to see the relevant lesion rather than any doubt as to its actual existence.

[44] See Ralph Harrington, 'On the Tracks of Trauma: Railway Spine Reconsidered', *Social History of Medicine*, 16 (2003), 209–23.

[45] Parrish, 'Remarks on Spiral Irritation', p. 293.

[46] Blustein, *Preserve Your Love for Science*, p. 234.

[47] Charles Parsons, 'Neuralgia: Its History, Nature and Treatment', *American Journal of Medical Sciences*, 28 (1854), 417–46 (p. 424).

[48] Edward Payson Hurd, *A Treatise on Neuralgia* (Detroit: Davis, 1890), p. 1.

[49] L. Putzel, *A Treatise on Common Forms of Functional Nervous Diseases* (New York: Wood, 1880), p. v.

[50] Landon Carter Gray, *A Treatise on Nervous and Mental Diseases* (Philadelphia: Lea Brothers, 1895), pp. 180–81.

[51] Tousignant; Karen Halttunen, 'Humanitarianism and the Pornography of Pain in Anglo-American Culture', *American Historical Review*, 100 (1995), 303–34; Elizabeth B. Clark, '"The Sacred Rights of the Weak": Pain, Sympathy, and the Culture of Individual Rights in Antebellum America', *Journal of American History*, 82 (1995), 463–93; Pernick; and James C. Turner, *Reckoning with the Beast: Animals, Pain, and Humanity in the Victorian Mind* (Baltimore: Johns Hopkins University Press, 1980).

[52] Moreover, because of the influence of European medical thought on American practitioners, the perspectives of European scientists and physicians on pain without lesion are relevant to assessing the views of leading American physicians. In this essay, I focus on an analysis of American physicians' attitudes and beliefs regarding pain without lesion. That these views were deeply influenced by the perspectives of

European practitioners is beyond dispute, as both the general reliance of American medicine on European schools and the primary sources themselves demonstrate.

[53] Howard L. Fields, 'Setting the Stage for Pain: Allegorical Tales from Neuroscience', in *Pain and Its Transformations: The Interface of Biology and Culture*, ed. by Sarah Coakley and Kay Kaufman Shelemay (Cambridge, MA: Harvard University Press, 2007), pp. 36–61 (p. 36).

[54] David B. Resnik, Marsha Rehm, and Raymond B. Minard, 'The Undertreatment of Pain: Scientific, Clinical, Cultural, and Philosophical Factors', *Medicine, Health Care and Philosophy*, 4 (2001), 277–88 (p. 281).

[55] Indeed, accreditation standards on pain management expressly note the importance of taking into account the patient's personal, cultural, spiritual, or ethnic beliefs. See Marlene Zichi Cohenet and others, 'Cancer Pain Management and the JCAHO's Pain Standards: An Institutional Challenge', *Journal of Pain and Symptom Management*, 25 (2003), 519–27; and Donald M. Phillips, 'JCAHO Pain Management Standards Are Unveiled', *Journal of the American Medical Association*, 284 (2000), 428–29.

[56] Hodgkiss, p. 130. Hodgkiss remarks that 'the "must" in his view reflected the primacy of the tradition of pathological anatomy which demanded some structural lesion to account for symptoms' (p. 130). The story of Erichsen's views on spinal concussion or railway spine and the bitter controversies that ensued are a fascinating study in their own right, bringing together important developments in railway history, industrialization, labour history, and medico-legal history. See Harrington; and Bill Bynum, 'Railway Spine', *Lancet*, 358 (2001), p. 339. There are American analogues: see, for example, Eric Caplan, 'Trains and Trauma in the American Gilded Age', in *Traumatic Pasts: History, Psychiatry and Trauma in the Modern Age 1870–1930*, ed. by Mark S. Micale and Paul Lerner (New York: Cambridge University Press, 2001), pp. 57–80. The issue of pain without lesion runs throughout all of these matters.

[57] Hodgkiss, p. 142. Hodgkiss concedes that 'Foucault's construct of the "medical gaze" finds its most impressive empirical support in Charcot's style, in this privileging of the visual, of inspection over anamnesis' (p. 137). This is relevant because Charcot is regarded as one of the founders of neurology, and his work was crucial to the localization of the nervous system.