Historical Background

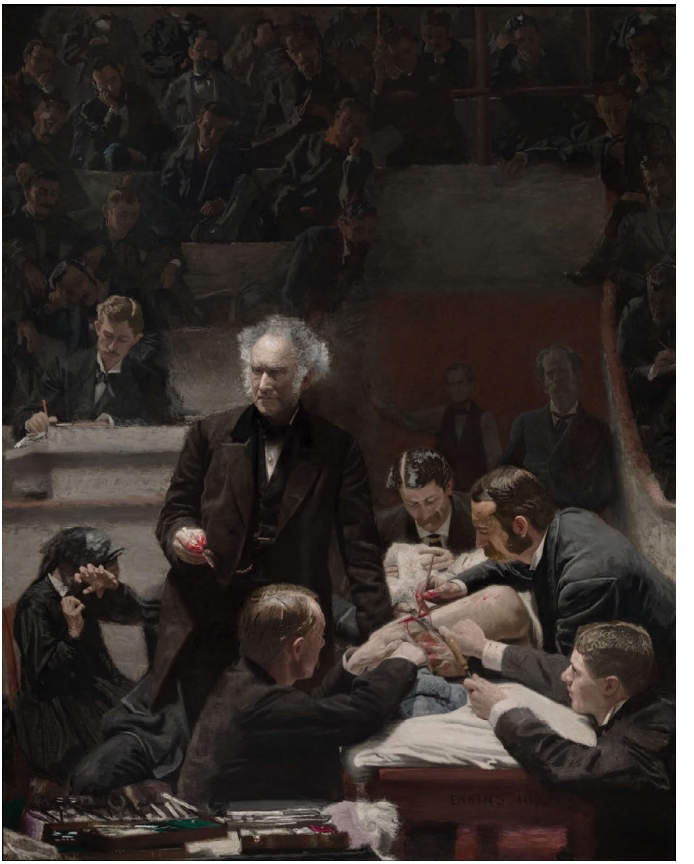
Preamble

In 1875, a thirty-one-year old artist by the name of Thomas Eakins (1844-1916) painted what many now consider to be the greatest American painting of the 19th century. *The Gross Clinic* (Fig. 11) depicts one of the foremost surgeons in the United States pausing in the middle of an operation carried out in front of his students, who are observing quietly and taking notes. The reason for the interruption is pedagogical. In keeping with the triple purpose of nineteenth-century surgical clinics to operate, teach, and train, Dr. Samuel David Gross has halted the surgery in order to explain to the audience an aspect of the procedure. Meanwhile, his attendants probe the open wound, and a female figure — presumably a relative of the patient — covers her eyes in horror at the gory spectacle.

The painting is praised today both for its subject matter and for its stylistic qualities. Not only does *The Gross Clinic* document an important moment in the history of modern medicine,[1] but it does so in an exact, hyper-realistic visual style that appeals to contemporary sensibilities. In Eakins's own time, however, the meticulous precision and uncompromising realism of this painting elicited vehement responses, especially in the artistic community. Conservative viewers and critics recoiled at the sight of nudity, open flesh, and dripping blood. Inspired to surgical thoughts by the painting's subject matter, one critic proposed cutting the figure of the doctor out of the canvas and wiping the blood from his hand by way of making the portrait palatable (qtd. in Goodrich 1970: 51). Another described *The Gross Clinic* as a "picture that even strong men find […] difficult to look at long,

1 *The Gross Clinic* captures the transformation of surgery from a craft deemed inferior to medicine and associated primarily with amputations into a respectable science that helped heal patients. This dramatic change in the character and status of the profession was made possible by advances in medical knowledge during the 18th century. Of crucial importance was also the development during the 19th century of anaesthesia and antisepsis, which relieved pain and reduced the risk of infections, thereby allowing doctors to perform elaborate therapeutic interventions inside the body. For more on the history of surgery, see Wangensteen/Wangensteen 1978, Tilney 2011, and Schlich 2018.

Fig. 11. Thomas Eakins, "Portrait of Dr. Samuel D. Gross (The Gross Clinic)," 1875. Philadelphia Museum of Art: Gift of the Alumni Association to Jefferson Medical College in 1878 and purchased by the Pennsylvania Academy of the Fine Arts and the Philadelphia Museum of Art in 2007 with the generous support of more than 3,600 donors, 2007- 1-1.



if they can look at it at all; and as for people with nerves and stomachs, the scene is so real that they might as well go to a dissecting-room [*sic*] and have done with it…No purpose is gained by this morbid exhibition, no lesson taught" (qtd. in Goodrich 1970: 52). In the eyes of many of Eakins's contemporaries, it was not just pedagogical value, but artistic merit too that the painting forfeited by uncovering and opening up the human body to visual scrutiny. "Power it has, but very little art," lamented an anonymous *New York Times* critic (qtd. in Homer 2002: 81). "To

sensitive and instinctively artistic natures," wrote another, "such a treatment as this one, of such a subject, must be felt as a degradation of Art" (qtd. in Goodrich 1970: 52). All these quotes suggest that *The Gross Clinic* embodied its title too well: it was too gross and unsparing for Victorian tastes, too realistic.

As with Anton Dunker's etching discussed in Part One of this study, I find particularly telling what Eakins's artwork leaves out. Missing from *The Gross Clinic*, as much as from Dunker's depiction of a magic lantern show run by Lavater, is, paradoxically, what one most expects to see: the human body. Nineteenth-century viewers may have averted their prudish eyes from this pictorial reenactment of a surgery, but a few drops of blood and some naked skin do not a body make. What we see on the operating table is an allusion to human form, and not even a fully-fledged one at that. In their simultaneous efforts to restrain the sick person, keep him/her sedated, hold the incision open, and clear the blood from it, five clinical assistants cover up most of the patient's body with their own, leaving exposed only a part of the upper leg and a buttock. The synecdochal substitution of a sexless, ageless thigh for the patient is accentuated by Eakins's dramatic use of color. The white linens around the patient form an aureole that stands out against the unlit background and dark attire of those in attendance. This puts the patient in a spotlight of sorts and creates the illusion of perfect visibility. In fact, however, the color match between skin tone and fabric blurs the contours of the patient's body beyond recognition. Despite the visual emphasis on the operating table, viewers of *The Gross Clinic* have to look closely to understand what the nondescript mass of white next to the surgeon represents. As if that were not enough, the blood on Dr. Gross' scalpel and fingers, to which almost all contemporaneous detractors of the painting refer, acts as a red herring that diverts attention even more from the human body, or rather from the little that we see of it.

Also symptomatic of the body's dissolution into inexistence and inconsequentiality is the absence from view of Dr. Gross' left hand. The omission is glaring not only by virtue of how important hands are to a surgeon, but also given how meticulously Eakins keeps track of everyone else's hands, including those of an assistant whose presence immediately behind the surgeon is barely discernable otherwise. That Dr. Gross' hand is out of sight at a moment when it should be providing tactile comfort to the patient can be read symbolically as a refusal to affirm the latter's embodied personhood. If we think of touch as a vehicle of sensory input about and exchange with an Other, then its absence from the doctor-patient interaction seen in Eakins's painting speaks volumes about the objectification of the human body in a medical setting. Add to this that almost everyone, beginning with the doctor and ending with the female figure, looks decidedly away from this fragment of a human, and it becomes clear just how deep the body's literal and symbolic erasure from view runs. No wonder, given this concatenation of factors, that some people mistook the patient featured in *The Gross Clinic* for a lifeless corpse

that "ought never to have left the dissecting room" ("The Society of American Artists" 1879: 42).

What can we make of this piecemeal representation of the human body in Thomas Eakins's painting? One nineteenth-century critic from the *New York Tribune* who noted correctly that "all […] we are allowed to see of the body is a long and shapeless lump of flesh" (qtd. in Homer 2002: 82) adduced this peculiarity as proof of the painter's supposed lack of talent. This argument does not hold water, and it did not convince in the 19th century either. Even the most impassioned critics of *The Gross Clinic* discussed the artwork at length in their reviews, proving that Eakins's style and technique had a universal appeal that transcended all objections to the painting's content. It is also not for lack of anatomical interest and knowledge that the artist fragmented the patient's figure. Early in life, Eakins developed a strong scientific curiosity about the human body that guided all his subsequent artistic and intellectual endeavors. As a student, he attended anatomy lectures and dissections at the Jefferson Medical College, and when he went to Europe to study art, he frequented the atelier of Léon Bonnat (1833-1922), a French realist painter who laid great stress on anatomical accuracy. In later years, upon becoming director of the Pennsylvania Academy of Fine Arts, Eakins revolutionized the curriculum by making dissections and anatomical lectures mandatory for those who studied painting. Through these and other pursuits, he came to understand the clinical culture of his time, gained much respect in the medical community, and became conversant in the language of physicians and anatomists. Eakins's precise knowledge of the body's structure, functioning, and motion is obvious from the anatomical fidelity with which he painted and photographed rowers, boxers, wrestlers, baseball players, and track and field athletes. Also indicative of his expertise in anatomical matters are the dozens of drawings of dissected humans and animals currently housed in the Pennsylvania Academy of the Fine Arts, which Eakins made and annotated with comprehensive notes. The preoccupation with human form runs like a red thread through his life and work, thereby invalidating the hypothesis that the painter of *The Gross Clinic* did not care or know how to give visual expression to the physicality of human existence. Someone who dedicated himself as thoroughly and continuously as Eakins to the study, teaching, and practice of medical anatomy and artistic anatomy and who believed that "to draw the human figure it is necessary to know as much as possible about it, about its structure and its movements, its bones and muscles, how they are made, and how they act" (qtd. in Kirkpatrick 235) cannot be suspected of ignorance in matters of lived and represented corporeality.

It would be equally misguided to attribute the scant physical presence of the patient in *The Gross Clinic* to a desire on the painter's part to excise from his work everything that might have offended Victorian critics and onlookers. The very fact that the body parts he did expose to view were of a titillating nature — a buttock

Fig. 12. Thomas Eakins, "The Agnew Clinic," 1889. Courtesy of the University of Pennsylvania Art Collection, Philadelphia, Pennsylvania.

in *The Gross Clinic* and a breast in his other well-known surgical painting, *The Agnew Clinic* (Fig. 12) — speaks against the idea that Eakins may have mobilized his artistic craft and vision in pursuit of a sanitized corporeal image. If anything, the opposite is true. All of the controversies in which the artist was embroiled arose from his refusal to apologize for, or compromise on, his treatment of the body, which to many came across as "sickeningly real in all its gory details" (qtd. in Homer 2002: 82). Eakins's clinical interest in the human frame, coupled with what Walt Whitman described as his unique penchant for resisting "the temptation to see what […] ought to be rather than what is" (qtd. in Potter 2014: 96), predisposed the painter against idealization and aestheticization in corporeal matters.

If, then, it is neither for want of interest, knowledge, and ability nor for fear of public opprobrium that Thomas Eakins cropped the patient's body down to an unrecognizable strip of flesh, what other factors can account for this reductive move? One possible explanation is that he left more to the imagination than to observation in order to heighten the potency of the image. As philosophers from Plato to Kant and beyond have argued, with profound implications for literature and the arts, what we imagine is equally, if not more, compelling than what we perceive with our senses, and the products of our imagination play a central role in how we process and engage with reality as embodied persons. One can, therefore, argue that, by letting viewers fill in the missing pieces of the human puzzle laid out on Dr. Gross' surgical table, the artist does not undermine the realistic idiom of the painting, but enriches it.

Another explanation — seemingly opposite but, in fact, complementary to the first — is that the small fraction of a human being that we see in *The Gross Clinic* conjures up the ample first-hand experience acquired by Eakins in gross anatomy classes and dissecting rooms. Autobiographical accounts such as those by Perri Klass (1994) and Kenneth Klein (1981), which describe in vivid detail the alienating effect of dissections on medical students, provide useful insight into how such experiences might have informed the painter's practice. Cecil Helman has argued that dissections entail not just cutting and slicing corpses, but also a loss of unity and coherence for the living people who participate in the process:

> We [the dissectors] are breaking down into artificial categories something that had once had a living and organic unity. And in dismantling the human image, we are also dismantling ourselves. As well as these cadavers, something else will have to die, a coherent sense of what is human, an ancient shape in the mind. (Helman 1992: 116)

In addition to this demystification, Helman notes a curious mixture of horror and humor deriving from the "violation of the human form" through dissection (ibid: 116). Thomas Eakins discussed the experience of probing into dead bodies in similarly dialectical terms. Even as he highlighted the necessity to study the human organism for anyone aiming to recreate its beauty, the prominent painter openly admitted that one cannot defend dissection as a "quickener of the aesthetic spirit" (qtd. in Goodrich 1970: 78). "This whole matter of dissection is not art at all," he elaborated further, "it is work, and hard work, disagreeable work" that can hamper the artist unless s/he unlearns much of what has been learned along the way (qtd. in ibid: 79). By visually ambiguating the figure of the patient in *The Gross Clinic*, Eakins facilitates for spectators an alienation from conventional depictions of the body similar to what he himself had experienced as an anatomy student at the Jefferson Medical College. Barred from immediately grasping what lies before their eyes and unable to identify with the patient on account of her/his obscured face, viewers of *The Gross Clinic* adopt "a dissector's point of view" (Werbel 2007: 51) even though, but also because, they see next to nothing of the human frame.

The two explanations outlined above suggest that Eakins's gesture in *The Gross Clinic* of brushing over the patient simultaneously fascinates and alienates. It inspires in viewers a combination of desire and dread toward the human body that mirrors the "shocking, but also comical" effect that cadavers and body parts have on students of anatomy (Helman 1992: 116). To be sure, this goes a long way toward explaining the complex aesthetic effect of this particular image. But in other nineteenth-century depictions of clinical encounters, the body is also cropped, visually obstructed, kept at arm's length, or downright neglected. This pattern suggests yet another dimension to Eakins's aesthetic choices, one that extends beyond *The Gross Clinic*, beyond him as an individual painter, and also beyond

the United States. It is a dimension that points, I argue, to a larger development during the 1800s in how patients and their bodies were perceived.

Let us first take Eakins's other famous medical painting as an additional repository of clues about the nature of this development. *The Agnew Clinic* (Fig. 12) gives us more visual access to the patient's body than *The Gross Clinic*, but the students in the auditorium do not have the same privilege. They visibly struggle to see past the ether inhaler covering the woman's face and past the clinical staff that block their view of the operating table. The doctor's attitude is as ambivalent as in the earlier artwork. Although this time the physician does look in the direction of the patient, there is still no direct visual contact between the two. Furthermore, Dr. Agnew's position to the left and away from the welter of events precludes even the slim possibility of a physical connection with the sick that existed in *The Gross Clinic*. Fourteen years after Eakins's first surgical painting, the doctor and his patient have grown more — and more visibly — apart.

Although not immediately evident, a similar mechanism is at work in a painting from 1816 by the Frenchman Théobald Chartran (Fig. 13). Here, René Laennec, the inventor of the stethoscope, is depicted sitting next to a hospital bed, seemingly in full engagement with the patient. And yet, in this case too, there is enough ambiguity in the body language of the two parties to suggest a contrary interpretation. The parallelism in the postures of the two men, the fact that they are looking in opposite directions and that the doctor's right hand is invisible — all this points to a symbolic disconnect between doctor and patient. A meaningful spelling anomaly in the painting's title further strengthens this suggestion. The French word for a person suffering from tuberculosis (*phtisique*) is misspelled with a *y*, making it easy to confuse with *physique* ("physical appearance").[2] The replacement of person with physique, substance with form exposes the imperceptible way(s) in which modern medicine hollows patients out, invading bodies, dismantling them, and reducing their complexity to parts and processes that fit neatly into predetermined categories. Chartran's *phtysique* functions in the same way as Derrida's *différance*: in a gesture both critical and recuperative, it draws attention to what is absent, to the many alternative facets, meanings, and identities of the human body that are effaced whenever we try to settle on one, but that continue to exist for possible activation in other contexts.

2 None of the dictionaries of French with etymological and historical references that I have consulted (*Le Petit Robert, Larousse, Trésor de la langue française*) mentions the words *phtisie* and *phtisique* having been spelled with a *y* in past centuries. The online edition of Larousse even cautions explicitly against this orthography. Like their English counterparts (*phthisis* and *phthisic*), the two French nouns go back to the mid-16th century and are derived, via Latin, from the Greek *phthineîn*, which meant 'to waste away.' More details can be found in the *Dictionnaire historique de la langue française* (Rey 2006: 2713-14) and in the *Dictionnaire étymologique et historique du français* (Dubois/Mitterand/ Dauzat 1998: 576).

Fig. 13. Théobald Chartran, "Laennec à l'hôpital Necker, ausculte un phtysique devant ses élèves" ("Laennec at the Necker Hospital Ausculting a Tuberculosis Patient in Front of His Students"), 1816. © RMN-Grand Palais / Art Resource, NY.

Even more drastic in its depiction of the suppressing effect that nineteenth-century medicine had on the human body is a lithograph from 1837 by Honoré Daumier in which the patient is obliterated on multiple levels (Fig. 14). To

Fig. 14. Honoré Daumier, "Clinique du Docteur Robert Macaire" ("Doctor Robert Macaire's Clinic"), 1837. Maroni Collection, Boston Public Library.

begin with, only one of the assistants is looking at the person lying in bed, i.e., acknowledging the patient's physical presence. The others engage the head doctor in a conversation from which we learn that the woman in their care has expired.[3] This piece of information marks the patient's second corporeal dissolution and explains the third one, which is that, from our vantage point as well, only her profile is visible, and only from underneath a white sheet. The fact that the doctor

3 The writing underneath the image captures the following exchange between the head doctor and his assistants: "Well! Gentlemen, as you have seen, this operation, which was said to be impossible, has succeeded perfectly. // But, sir, the patient is dead… // What does it matter? She would be much more dead without the operation!" (My translation. Original quotation runs as follows: "Hé bien! Messieurs, vous l'avez vû, cette opération qu'on disait impossible a parfaitement réussi. // Mais, monsieur, la malade est morte… // Qu'importe? Elle serait bien plus morte sans l'opération!")

does not seem aware of the woman's passing and that, even when informed or reminded of it, he does not change his narrative about the success of the operation adds even more fuel to Daumier's critique of physicians who hold on to artificial ideas and categories at the cost of neglecting obvious signs of physical anguish in their patients. Worse still, given that the woman's death is the only proof the doctor has or needs to hail the operation a triumph, the artist implies that the disappearance of the patient's body is a precondition for the success of modern medicine, not an obstacle to it.

Although Daumier's caricature belongs to a different genre than the paintings by Eakins and Chartran, all four artworks reflect a growing objectification of patients and their bodies during the 19th century. Eakins would have observed this phenomenon during his extensive travels throughout Europe between 1866 and 1870. The artist spent most of his sojourn in France, but also visited the other country known for laying the groundwork of modern science and for helping extend the scientific spirit into medicine, namely Germany. Being in such close geographic proximity to the engines of innovation and knowledge expansion, the Philadelphia-born artist was particularly well-positioned to gauge how and how much the new ideas and instruments of the 19th century impacted doctor-patient interactions, as well as medical and public perceptions of the human body. What he found and what we see reflected in his surgical paintings is John Ruskin's prophecy come true that a "long devotion to logical and analytical inquiries" risked hardening the soul and rendering it blind to the "sublimity or mystery" with which the object of study is veiled upon first inspection (Ruskin 1969: 34). What exactly precipitated the body's loss of aura during the 19th century, forms the subject of the next section.

The Rationalized Body and Its Discontents

To this day, cultural and social historians struggle to find an umbrella term for the deluge of changes that swept across nineteenth-century Western Europe, whence they radiated to other parts of the world. New disciplinary boundaries; groundbreaking discoveries and inventions in the fields of transportation, communication, and medicine; expanding industrialization, mass production, and capitalism; an unprecedented boom in population; sustained nation-building efforts and revolutionary, anti-absolutist impulses coupled curiously with colonial ambitions — these are some of the factors that fostered a climate of change in the 1800s unlike any other before it. While interconnected, these epistemic, technological, economic, and socio-political developments are difficult to fit under one conceptual roof. Scholars are still debating whether 'modernization' adequately captures this complex set of phenomena or whether more incisive terms such as

"rationalization" (cf. Max Weber 1993) or "disenchantment"(cf. Max Weber 1919) are better suited to the task. Also under discussion is the related question of whether it is possible or advisable to identify a common denominator for all these processes (e.g., a shared causal pattern) without simplifying the subject matter to the point of distortion.

Everyone agrees, however, that science served as a catalyst for many of these tectonic shifts, all while undergoing its own intellectual and social transformations, to which many people refer collectively by Thomas Kuhn's term "[the] second scientific revolution" (1977: 220). The very term *science* appeared for the first time in the 19th century (Windelspecht 2003: xviii), and this was just the tip of the iceberg in a sea of change. Beneath the surface of this name formation lay deep-running identity and structural permutations. In the span of 100 years, new answers were formulated to the questions of what science was (for), how it was carried on, by whom, and following which organizational principles. Nineteenth-century scientists were no longer content simply to observe and describe the world; they hypothesized and experimented in order to understand how things functioned and to effect change. In turn, this new outlook brought about a diversification of the disciplinary landscape. As natural philosophy and natural history made their final bow on the stage of history, science transitioned from an undifferentiated, monadic field to an aggregate of specialized disciplines such as chemistry, physics, mathematics, the life, earth, and social sciences — each with its own focus, methodology, lexicon, instrumentation, practitioners, publications, and institutions. No longer a vocation or spare-time activity, science became a profession requiring a set of skills that could be obtained only through formal education and specialized training.

In parallel with this process of branching out and with "the coming of the scientist" (Knight 2009: XII), the relationship between scientific studies and technological advances became firmly established, and science made forays into medicine that changed the face, content, and method of this discipline for good. The resulting birth of "medical science," also called "scientific medicine" or "modern medicine," is what primarily interests me in this section – not for its myriad contextual ramifications, which are too intricate to be detailed here, but from the point of view of its effects on the body. How did the recalibration of medicine along scientific lines change the way(s) in which the body as both a real, material entity and a discursive construct was perceived, manipulated, and conceptualized? Definitive answers to this question are neither possible in the limited space available here nor desirable given the many threads and layers of the rich weave that is the history of nineteenth-century medicine. But a few key developments need to be mentioned by way of gauging the status of the body during the time period under discussion.

Let me begin my remarks with the guiding thesis that despite some surface indications to the contrary, the waning of medical interest in the external surface of the body that, as I have argued in Part One, was already under way in the 1700s, reached its climax in the 19th century, particularly the second half thereof. Michel Foucault has famously argued in *The Birth of the Clinic* that the view of the body espoused by emerging medical institutions during the 19th century, for which he coined the term "medical gaze," dehumanized patients by separating body from person. Foucault's charge is that scientific medicine developed a domain of knowledge about the body in order to wield power. It rationalized — i.e., measured, scanned, inscribed, classified, and analyzed — the body into docility. The irony is that, in the process of exposing the abusive power structure on which the edifice of medical science was built, Foucault commits the same fallacy as those he seeks to criticize, namely he loses sight of the human body qua body — and, with that, also of lived experience and of the phenomenology of embodiment. In the words of Chris Shilling, who echoes the earlier arguments of Bryan Turner (1984) and Peter Dews (1987), "the biological, physical or material body can never be grasped by the Foucauldian approach as its existence is permanently deferred behind the grids of meaning imposed by discourse" (1993: 80). In what follows, I want to return us to a more concrete account of the body's trials and tribulations during the 19th century by drawing on pertinent facts, circumstances, and insights from the work of historians of science and cultural historians.

From one perspective, the 1800s can be viewed as a hotbed of revisionist ideas that fostered a deeper, more complex understanding of the human frame. New to the 19th century was the construal of the body as a living — i.e., complex, dynamic, self-regulating — organism. Echoing the work of Michel Foucault (1994) and François Jacob (1973), Tobias Cheung has argued that, even though the word *organism* goes back to medieval times, it was not until the mid-19th century that its present meaning was established. Over the course of 130 years beginning in 1700, this concept gained much traction in the emerging biological disciplines and switched from referring to "a specific principle or form of order" (Cheung 2006: 319) — that is, a lifeless organizational pattern — to designating "whole-part units" and "natural entities determined by outer and inner millieux" (ibid: 339). This semantic shift marks the emergence of life as "one object of knowledge among others" (Foucault 1994: 162), i.e., as an epistemological domain whose exploration required methods, concepts, and specialized language of its own (Jacob 1973: 89).

Having the technological means to finally see what happened inside the body, as opposed to speculating, drew attention away from the outside contours of the human frame even more than in the 18th century. Importantly, it also ushered in a new way of construing the internal dynamic of human physiology. The doctrine of self-regulation that underlay the new paradigm of body-as-organism rendered obsolete the old model according to which the interplay of body parts was based

on a hierarchy of locations. For the first time in their history, "human beings were endowed with an organism within which a highly complex exchange between individual organs unfolded: organs possessing their own distinct tasks" (Koschorke 2008: 483) worked together according to a logic orchestrated by the central nervous system. As the word itself implies, *organism* began to denote the organization of independent, yet cooperative elements in a harmonious whole.

Underneath this progressive veneer, though, lay developments that threatened to undo the forward-looking impetus of nineteenth-century medicine. A case in point is that, in its rush for objective, standardized data, scientific medicine became enamored of numbers, graphs, and taxonomies whose reductive effect went against the idea of life as a vibrant, complex system that cannot be distilled into one principle or word. The uniqueness and irreducibility of living beings was also subverted by the fact that mechanistic ideas continued to inform the concept of life processes well into the 19th century, particularly in the German lands. Medical professionals there did recognize that physical and chemical laws were not sufficient to explain how living organisms functioned, but so-called 'reductionist' explanatory models continued to prevail. Landmark publications of the age, such as Johannes Müller's *Handbuch der Physiologie des Menschen* (1833-40), openly drew on discoveries from physics and chemistry in order to investigate physiological problems. Sharing the same commitment to physico-chemical thinking, four physiologists associated with Müller published a mechanistic materialist manifesto in 1847 proclaiming that life phenomena were no different from physical phenomena, i.e., that all living forms could be understood in terms of matter in motion.[4] The dissolution of physiology into physics that Emil Heinrich du Bois-Reymond (1818-1896), Ernst Wilhelm von Brücke (1819-1892), Hermann von Helmholtz (1821-1894), and Karl Ludwig (1816-1895) predicted in this document echoed the mechanistic views of Boerhaave and de La Mettrie from the previous century. Similarly, Justus von Liebig (1803-1873), whose institute at the University of Giessen trained many students in laboratory research methods, made it his life's work to apply the physical sciences to living organisms. Firmly convinced that biological processes conformed to physical and chemical principles, Liebig measured what went into the body against what came out by way of substantiating a highly mechanistic view of life phenomena that was at variance with the organic, vitalist impulses developing in other nineteenth-century circles.[5]

A third counterpoint to the success stories told about nineteenth-century medicine is that the instruments, methods, and insights which revolutionized the

4 This manifesto can be found in the introduction to du Bois-Reymond's *Untersuchungen über thierische Elektricität* (1848-84).

5 For detailed discussions of the nineteenth-century polemic between (French) "vitalists" and (German) "reductionists," see Temkin (1946) and Mendelsohn (1965).

field during this time contributed little to the development of new therapies. Put differently, physicians could explain the etiology of diseases much more readily than cure them (Hagner 2003: 50). In no small part, this happened because the transition from body-as-vessel and body-as-machine to body-as-organism did not realize its potential to affirm the human being as an active subject. New, non-invasive tools allowed medical professionals to respect the boundaries and privacy of patients to a greater degree than their eighteenth-century predecessors. But they, too, regarded the human body as a passive object from which knowledge could be generated at will and to which nothing was owed. Last but not least, for all the theoretical emphasis on inter-organ coordination that came with the shift to a neurological corporeal model, in clinical practice the body continued to be perceived as a fragmented entity. Autopsies were not as prevalent as in the 1700s, but the arrival on the scene of organ-specific instruments and specialists fueled the idea that disease resided in specific places within the body, thereby undermining the concept of the human organism as an integrated whole.

Taken together, the counter-impulses mentioned above testify to the paradoxical coexistence during the 19th century of two opposing epistemic currents, one flowing in the direction of corporeality, and the other away from it. While it is true that physiological knowledge took a quantum leap during the 1800s, the means by which this came about undercut the image of a body teeming with complexity and variability that could have grown out of the discursive turn to living organisms. The instrumentarium used by doctors, together with the analytical and interpretive methodologies they imported from the sciences, ensured that corporeal rhetoric lost the little visibility and medical relevance it still held in the wake of the 18th century. If, as I have argued in Part One, the outer body was transparent from a medical perspective during the 1700s, the following century rendered it completely immaterial.

We see the same phenomenon at play in another contradiction that marked the medical approach to the body during the 19th century. The introduction of new investigative methods (auscultation, palpation, percussion) and the development of specialized instruments (particularly the ophthalmoscope, the stethoscope, the X-ray machine, and the fluoroscope) allowed physicians to look for internal problems without the need for surgeries or autopsies. This growing technological sophistication changed medicine for good but was a double-edged sword. For, even though it made possible a shift in emphasis to the living, intact body, it also distanced medical professionals from patients, thereby pushing the outer body even more into the recesses of invisibility. This was especially the case with researchers working in the newly minted laboratories on German soil. Under the leadership of people like Justus von Liebig of Giessen, Robert Bunsen (1811-1899) of Heidelberg, and Johannes Müller (1801-1858) of Bonn and, later, Berlin, laboratories became key sites for the advancement of medical knowledge — first in the domain

of chemistry, then in physics and experimental physiology. This process had much to do with the fact that the new research locales were at a remove from the spaces in which clinician-patient interactions took place. Detaching oneself from the sick and relying instead on measurable quantitative data obtained with new devices and machines presented many benefits in the developing research culture of the 19th century. First and foremost, it helped researchers achieve the gold standard in their profession, namely scientific objectivity. Rapid advancements in technologies of collecting and processing data gave medical professionals both the idea and the means to eliminate what was now deemed subjective, unreliable evidence, thereby claiming more authority for their research. It was not just patient accounts of disease that fell into disrepute following the introduction of new diagnostic techniques and equipment. As Stanley Reiser has argued, there also grew in medicine a distrust of "the accuracy with which sense impressions gained at the bedside were engraved on the memory of the doctor, a distrust of his ability to accurately describe and recall these impressions, and to attain full insight into the facts that he had acquired" (1978: 228). The same tools that illuminated these shortcomings also offered a way to overcome them by making redundant the verbal descriptions of patients and clinicians. Unencumbered by subjective accounts of illness[6] and by the specifics of individual clinical histories, nineteenth-century practitioners of organic chemistry, microscopy, and physiology could more readily disengage from their subjects, focusing instead on precise measurements and calculations that promised more accurate and impartial results.

Another benefit of not having to be in physical proximity to patients was that clinical diagnostic information about them could circulate from one physician-scientist to another more freely and widely — that is to say, with fewer geographic restrictions than before. New inventions and numerical methods made it possible to convert the subjective sensory impressions of bedside physicians into objective, standardized data that could be shared with other doctors who had never met and would not need to meet the patient(s) in person. And more people having access to the same information meant more opinions and more dialogue. As in many other fields, technology facilitated the dissemination and exchange of ideas, which, in turn, expanded the research horizon and led to the formation of professional networks and communities that were essential for the growth of the discipline. A pertinent example is the already-mentioned research group led by Johannes Müller, which included four physiologists who would later stake their own claim to fame. Another noteworthy research team formed around Justus von Liebig and became the subject of a famous illustration by Wilhelm Trautschold (Fig. 15). The image captures admirably the spirit of collaboration that defined laboratories

6 For more information on the demise of patient narratives from nineteenth-century medicine, see Fissell 1991.

from their very inception and contributed to the establishment of a research ethos not just in the German-speaking territories, but worldwide. That human subjects are altogether absent from the picture is extremely telling. It reflects the real-life disappearance of the patient qua individual.

Fig. 15. Depiction of Justus von Liebig's chemical laboratory by Wilhelm Trautschold (1815 – 1877). In Müller-Baden 1912, facing p. 150.

The vanishing outer body did raise concerns that, in its rush for scientific validation, medicine was "losing its human side" (Hagner 2003: 68) and that physicians no longer saw themselves as dealing with human beings, but rather with case studies and pathological entities. Delivering an address at the 1896 Annual Meeting of the British Medical Association, Sir Dyce Duckworth warned his colleagues "that our eyes and our minds are rather apt […] to dwell too much on our detailed notes and our manifold instrumental aids and too little on the patient, his personal peculiarities, and the intimate nature of his ailments" (1896: 252). One would expect that questions pertaining to the ethics of scientific medicine would have been especially prominent in the German-speaking world, since the polarization between bench and bedside, laboratory and hospital was greater there than in other countries — most notably France, where experimental physiology developed under the benevolent eyes of the Paris Clinical School (Hagner 2003: 65). But this did not come to pass. The reason was that the Romantic ideal of pure science, which was partly responsible for the rift between German clinicians and researchers, did not champion the cause of patients either. Even those who, like Sir Duckworth, actively tried to reconnect medicine with its roots in ensuring

the physical welfare of human beings as dignified individuals, did not start to voice concern over what N. D. Jewson has termed "the disappearance of the sick-man [*sic*] from medical cosmology" (1976: 225) until the late 19th century, when the deleterious effects of the scientific turn in medicine were becoming clear. By then, it was too late to put up any serious resistance. The "true age of science" (Porter 2001: 173) was already in full swing, and the patient's recession into invisibility was a small price to pay for all the benefits that this revolution promised to bring to medicine.

Unlike physiologists, clinicians had to champion the cause of human contact because the imperative for face-to-face interaction with patients was built into their medical practice and became all the more acute with the emergence of hospital medicine during the 19th century. For these reasons, it was primarily bedside physicians whose engagement with the sick was most affected by the onslaught of medical instruments with which humans could not compete in terms of impartiality, constancy, and precision. Interestingly, in the first part of the century, doctors seemed, if anything, to get closer to their patients. Hands-on physical examinations became the norm and were considered more reliable than the methods of clinical observation prevalent in the 1700s, such as history taking or the visual inspection of bodily appearance (Lachmund 1999: 423). And when the Frenchman René-Théophile-Hyancinthe-Laennec (1781-1826) employed a new technique whereby physicians placed an ear directly on the patient's chest to listen for sounds of disease, it seemed that nothing could ever come between doctor and patient. But things soon took a turn in the opposite direction, and the early history of stethoscopy helps illuminate why and how this happened. Ironically, 'immediate auscultation,' as Laennec's procedure was called, did not catch on precisely because of its intimate nature. Patients and physicians were equally embarrassed to be in such close proximity. Laennec himself noted that, as a male doctor, he felt uneasy using the unaided ear to perform auscultation on young women.[7] It was in no small part the desire to put some physical distance between himself and his patients that led Laennec in the second decade of the 19th century to develop 'mediate auscultation' with an instrumental aid called stethoscope. On the one hand, this new device forged a symbolic connection between doctor and patient (cf. Lachmund 1997), because it quickly gained the acceptance of both parties and became a permanent fixture in all their clinical encounters. Simultaneously,

7 "In 1816, I was consulted by a young woman laboring under general symptoms of diseased heart, and in whose case percussion and the application of the hand were of little avail on account of the great degree of fatness. The other method just mentioned [direct application of the ear to the chest] being rendered inadmissible by the age and sex of the patient, I happened to recollect a simple and well-known fact in acoustics, and fancied it might be turned to some use on the present occasion." (Laennec 1834: 5)

however, the stethoscope also fulfilled Laennec's wish of having a physical and metaphorical barrier between the personal phenomenology of disease and the technical terrain of medicine. Physical, because it limited or removed the need for a tactile probing of the patient's body. And metaphorical, because it enshrined the superiority of the doctor as the only one qualified and authorized to access and interpret the acoustic evidence afforded by stethoscopy. Stanley Reiser has likened the effects of the stethoscope on physicians to those of printing on Western culture:

> Print and the reproducible book had created a new private world for man. He could isolate himself with the book and ponder its messages. Similarly, auscultation helped to create the objective physician, who could move away […] to a more detached relation, less with the patient but more with the sounds from within the body. (1978: 38)

While this comparison does not capture the increasing imbalance of power between the sick and those tending them, it does bring into relief the growing importance of interpretation in nineteenth-century diagnostic medicine, as well as the widening gap between doctor and patient. Their physical and symbolic distantiation played a major role in the acceptance of the stethoscope by members of the medical profession — bigger, in fact, than the technological merits of this instrument. As Jens Lachmund has shown, most nineteenth-century physicians who adopted Laennec's invention did so not because they believed in its amplifying properties, but "for practical, hygienic, and moral reasons" (1999: 424).

Stethoscopy was only the first in a long line of diagnostic techniques that eroded previous notions and practices of clinical intimacy. Despite the resistance of bedside physicians to the depersonalizing thrust of scientific medicine, the gulf between them and their patients grew wider with every new instrument that saw the light of day. In the course of time, even those who tried to find a middle ground between bench and bedside grew distrustful of patients and their narratives. Laennec himself is a pertinent example in this respect, as is Pierre-Charles-Alexandre Louis (1787-1872). The latter strongly advocated for taking the patient's history and circumstances into consideration, but nevertheless posited a qualitative difference between the subjective *symptoms* of disease that ailing persons reported and the more reliable *signs* of disease that doctors ascertained during examination. The rhetorical alienation of physicians from the patients under their care mirrored their physical separation as a result of the influx of new clinical instruments. Especially in the second half of the 19th century, the arrival of visual devices on the medical scene curtailed the kinaesthetic involvement of doctors in the diagnostic assessment of patients. Whereas eighteenth-century clinicians would feel the pulse, manually probe fractures, sniff and taste urine, listen for breathing problems, and observe the skin and eye color, in the 1800s

vision overtook all the other senses as the most important vehicle for generating diagnostic knowledge. It was not just any kind of vision either, but a mechanically aided one that looked past the fleshy exterior of the body and also past the patient's individuality. In one sense, visual technology extended the reach and power of the human senses by giving doctors access to parts of the body and phenomena that were not manifest to the naked eye. However, there was another side to this coin. Technological innovations such as the microscope, the X-ray machine, and the fluoroscope may have given medicine "new eyes" (Porter 1997: 321), but they were prosthetic eyes, laser-focused on the inner corporeal space, and completely indifferent to external physical characteristics and symptoms. Eyes that could scrutinize smaller internal entities than ever before, yet lose sight of the big picture.

No wonder that, in this environment of stringent focalization and specialization, a clinical practice developed that did not require extensive attention to what patients looked like on the outside and to what they had to say, even allowing for them to be completely absent. This applies especially to the German-speaking territories, where many of the nineteenth-century medical instruments originated due to the unique entwinement of physics and physiology in this part of the world. Modern medicine would not be where it is today without the work of German clinician-investigators who either dabbled in physics themselves or established and nurtured relationships with physicists, mathematicians, and instrument makers. Examples of such physicians include Hermann von Helmholtz, who developed the ophtalmoscope, Philipp Bozzini (1773-1809), the inventor of the first endoscope-like device for inspecting various organs, and Wilhelm Conrad Roentgen (1845-1923), to whom we owe the discovery of X-rays. All this visual technology allowed doctors to see inside human beings, but, as argued before, it also gave medicine a distinctly anti-vitalist orientation and made it easy to look away from the outer surface of the body.

An important continuity can be identified here with the preceding century. The changes that pushed the exterior of the body out of the medical picture were incremental and spanned 200 years. Although physical appearance commanded significantly more attention from doctors throughout the 1700s, it was during this same century that its depreciation began. Instrumentalizing the outside of the body so as to glean its inner workings was the first step in a longer process that would erode the medical eloquence of outward appearance to the point of irrelevance. The retreat from external corporeality that began in the 18th century found its natural continuation in the 1800s.

Medicine was not the only field in which this phenomenon occurred. In philosophical circles, too, the body lacked appeal — and not just its outer layer. This was especially true in Germany, where nineteenth-century philosophy was very prolific, but not in the domain of corporeality. For all their doctrinal differences,

the Idealists, the Romantics, Marx, and Nietzsche did not advance the cause of the body. To a considerable degree, this oversight had to do with the growing-apart pains of two disciplines that had once belonged together. The splitting of science into a multitude of branches during the 19th century accelerated and accentuated its separation from philosophy. In Germany, the gulf between these two fields became even wider with Hegel's attacks on Newton, to which scientists replied with equal vitriol. To be sure, some Romantic thinkers — including proponents of *Naturphilosophie* — did concern themselves with questions of immediate relevance to the natural sciences and to medicine, and scholars today are still working to uncover the full extent of their contributions to these areas and to scientific methodology.[8] Overall, however, the effects of Hegel's disputations against scientific empiricism extended throughout the entire century. Writing in 1865, Hermann von Helmholtz noted with sadness the growing distance between science and philosophy as a result of their "leidenschaftliche und erbitterte Polemik" in earlier decades: "Die Naturforscher fingen nun an ein gewisses Gewicht darauf zu legen, dass ihre Arbeiten ganz frei von allen philosophischen Einflüssen gehalten seien, und es kam bald dahin, dass viele von ihnen […] alle Philosophie nicht nur als unnütz, sondern selbst als schädliche Träumerei verdammten" (1876, 1: 8). No one stood to gain from such divisive, bellicose rhetoric — least of all the body, which found itself in the middle of this polarized epistemological landscape. With scientific medicine assuming more and more jurisdiction over the human being, German thinkers of the 19th century shied away from corporeal matters for fear of trespassing on contested territory. It was not a difficult concession given the abstract orientation of German philosophy. "The German mind, from Leibniz onward," writes Sir William Cecil Dampier in his frequently reprinted history of science's relationship with philosophy and religion, "has always sought to construct a broad rational theory of the Universe before examining any part of it" (1942: 324). It is, therefore, unsurprising on two counts that the material corporeality of the body was relegated to an afterthought in the German lands: once because of the rising tensions between philosophy and science, and a second time on account of the former discipline's long-standing metaphysical bent.

In truth, the body did not disappear completely from philosophical writings of the time. Research has shown that towering figures such as Fichte, Schelling, Schopenhauer, and Nietzsche did engage with this issue in their works.[9] But their view of the body was narrow, particular, and colored by a primary concern with what lay beyond individual corporeal existence — be it metaphysical questions in the case of Idealism, or nature, the imagination, myth, language, and history in the

8 On this topic, see Risse 1972, Cunningham/Jardine 1990, Lammel 1990, Lohff 1990, Poggi/Bossi 1994, Wiesing 1995, Hagner 1997, and Richards 2002.

9 See, for instance, the studies by Schöndorf (1982), Grätzel (1989), and Pegatzky (2002).

case of Romanticism. Even Marx and the materialists who preceded him neglected the physicality of the human body despite their focus on the material conditions of life — a serious blind spot that feminist and gender theorists would later expose and seek to fill. Much like its medical counterpart, then, the philosophical body was absent even when present.

In an interesting turn of events, the marginalization of the body in medicine and philosophy fueled a yearning for it in other areas of human activity. Larger societal transformations and their attendant psychological effects also fanned the flames of interest in the rhetoric of outward appearance. The same landmark developments of the 19th century that expanded people's horizon of knowledge and action left them feeling stripped of agency and estranged. Scientific discoveries, technological advances, industrialization, and mass production made it possible to understand and achieve things that previous generations had not even dreamed of. But the number, reach, and pace of these changes overwhelmed their intended beneficiaries and engendered feelings of confusion and helplessness. Adding to this was a general sense of alienation, which derived from the social consequences of the industrial and medical revolutions. The growth of factories, together with discoveries in hygiene, general medicine, and surgery, prompted major demographic shifts — most notably, an influx of population to urban areas, a dramatic reduction in morbidity and mortality,[10] as well as a lengthening of the average life span. People now lived longer and in closer proximity to others than ever before. The problem was that these others were, more often than not, complete strangers — anonymous, interchangeable cogs in an inscrutable machine designed to mass-produce identical commodities. With the economic rise of the bourgeoisie and the proletariat, social spheres collided in the physical space of the metropolis, elevating to an all-time high the anxiety about the loss of social transparency and of a unique personal identity. Not knowing who the many people were that one encountered on a daily basis gnawed away at one's own sense of selfhood.

As a way to cope with this double alienation and regain some control over their lives, people turned to practices which promised to impose coherence on the brave new world that had sprung up around them seemingly overnight. Practices that could bestow power by enabling one to read, understand, and predict. Practices of classification, categorization, and standardization. The offshoots of physiognomy that arose in the 19th century fit this bill perfectly. Phrenology, criminal anthropology, and composite photography helped make sense in an immediate, visual way of the people one encountered, and they lent themselves for use both in everyday situations and in institutional settings. By

10 According to Sir William Cecil Dampier, the annual death rate in big cities like London decreased from 80 per thousand in the 18th century to 12 per thousand in 1928 (1942: 283).

foregrounding the rhetorical valences of the body, Lavater's epigones seemed to fill in what mainstream medicine and philosophy left out of account. They did so in a comprehensive, systematic manner that both reflected and fed the obsession of the age with typologies and taxonomies as guarantees of scientificity. Therein, however, lay also the rub that placed phrenology and eugenics on a continuum and left unresolved the issue of the body's invisibility. By reducing the outer corporeal structure to measurable, classifiable abstractions, nineteenth-century proponents of physical legibility adopted a similar approach to the human figure as physicians and philosophers. Their interest did not pertain to the body as a complex, irreducible entity, but as something to be classified and typified so that onlookers may navigate more easily the opaque social environment of big cities. In other words, in the case of these pseudo-sciences too, it was not corporeality itself that mattered, but the benefits to be drawn from visually decoding it. Reading someone's appearance — which in the 19th century could mean as little as categorizing them based on the shape of the skull — may have given the illusion that one could also read, hence master, one's surroundings, but it did not do justice to the material concreteness and rhetorical complexity of the body. If anything, it exacerbated the already extant tendency to look through or away from people, rather than at them.

And so the body continued to be shrouded in a cloak of invisibility. In spite of repeated attempts to efface it, however, this collateral victim of modernity's will-to-order never stopped trying to liberate itself from the straitjacket of standardization. Its voice may have been muffled, but it could not be silenced. Literature, I argue, played an important role in satisfying "die Sehnsucht nach Leiblichkeit" (Arndt/Brodersen 2011: 21) that arose as a backlash to the disregard for corporeality in medical and philosophical circles, as well as in the social sphere. To be sure, literary fiction did not remain untouched by the era's infatuation with standardizing and classifying procedures. Novelists in particular found the idea of types appealing because they hoped the paradigmatic nature of stock characters would help fulfill the representational aspirations of novelistic prose. Some authors held the view that reducing the characterological makeup of protagonists to a few basic traits would make them more relatable to people from all walks of life, beyond partisan divides. Others, by contrast, believed that partisanship was critical to securing engagement — in other words, that readers were more likely to identify with typical characters representing a larger entity, either because the respective connection mirrored their own real-life affiliation with that particular group or because they naturally felt the urge to identify with a group of some sort, even a fictional one. In all these cases, typification was supposed to enhance the appeal of novels by drawing the reader in without recourse to emotions. One of the added benefits of using types was precisely that they could advance the quest for objectivity, which had become a desideratum not just in the sciences, but in

prose fiction as well. The more easily categorizable, i.e., less ambiguous and more transparent, characters were, the more distanced the narrator appeared. This lack of narratorial involvement gained increasing currency throughout the 19th century by association with scientific objectivity. Readers extended to literary omniscience the respect that impartiality commanded in the sciences, and this transference had important consequences for interdisciplinary dialogue, as well as for the perception and fortune of novels. It helped maintain the lines of communication open between the literary and the scientific domains, and it assisted the novel in its development from a young upstart among literary forms to what Georg Lukács has termed "the predominant art form of modern *bourgeois* culture" (1964: 2; original emphasis). Last but not least, types appealed to novelists also because of their association in the sciences with developmental models. In the age of teleological evolutionism, especially before Darwin, types served an idea of inevitable progress on an ascending scale that lined up perfectly with the growth-and-maturing formula of the *Bildungsroman*, for instance.

For all its benefits, however, the use of types in novels entailed certain qualitative losses that threatened this genre's raison d'être, with serious implications for its identity and subsequent trajectory. Averaging out individual differences and variations so as to find the lowest common denominator and obtain a specimen may have worked in the sciences, where the goal was, and still is, "to derive general laws […] by analyzing complex phenomena into smaller comprehensible units," then synthesize those units into larger patterns of order (Bornstein 1984: xxiv). But novels developed a different approach to the world and to human existence — private, intuitive, and concerned with the individual rather than the general. They stressed personal history and biography, not empirically-driven generalizations. Even within the framework of Foucault's argument that the taxonomical impulse of the 18th and 19th centuries sprang from a desire to organize the world not through homologies and correlations, but through differences (cf. Foucault 1994), the formation of types still presupposes a paring down of individuality, complexity, and variety. This reductive move went against the novel's commitment to exploring the human condition in its myriad ramifications and transformations. Novels attended to the concrete and particular; they treated human beings not as abstractions, but as individuals who boast unique quirks and are beset by mystery, unrest, and conflict. Novelistic literature did not deal in axioms and definitive answers. Its goal, rather, was to capture the ambiguity, richness, and proteanism of human life. It stands to reason, then, that the logic of types did not transfer easily from the scientific to the literary field. If it had, the novel would have had to surrender its disciplinary independence and renounce its claim to recognition as a serious form of literary and epistemological inquiry. Much like the types prevalent in the sciences, it would have lost its distinctiveness and become a mere sounding board for scientific theories and ideas. In the following section, I will

use examples of physical descriptions from the novel *Zum Zeitvertreib* (1897) to gauge how one German author navigated the fine line between the benefits and pitfalls of communicating with the sciences in an age of increasing disciplinary diversification. Given the medical developments outlined above, this conundrum was particularly acute in the case of the human body. The fact that Friedrich Spielhagen maintained a critical distance from the scientific notion of types bespeaks, I argue, a firm commitment not only to the novel but also, and just as importantly, to corporeality and to humanism.