A writer of the body and its myriad pains, Max Blecher is also an emblematic author that vividly reveals, in a tragic, authentic manner, the intersection of medicine and literature. His visionary, oniric novels are singular and unusual pathographies, writings about disease that document Blecher’s exhausting and hopeless decade-long battle with bone tuberculosis. I intend to explore the novels *Scarred Hearts* (1937) and *The Lightened Burrow* (1938; 1971) in order to confirm the centrality of medical intervention in his modern vision of the body, sickness and pain.

**Keywords:** medicine and literature; medical intervention; Romanian interwar modernism; illness; pain.

Blecher’s biography and fiction reveal the writer’s complex relationship with medicine and the medical realm: the son of an affluent Jewish family in the provincial town of Roman, Romania, he left for France to study medicine in Paris, but shortly after arriving he was diagnosed with bone tuberculosis. Until his death in 1938, Blecher sought medical care in various European sanatoria: Berck-sur-Mer, in France, Leysin, in Switzerland, Techirghiol, in Romania. He wrote his oeuvre – one volume of poetry and three novels – while bedridden, on a wooden board placed on his raised knees. *Adventures in Immediate Irreality* (1936), *Scarred Hearts* (1937), and *The Lightened Burrow* (1937, published posthumously, in 1971) form his autobiographical trilogy, deeply rooted in the memory of his childhood and his experience with disease and medical treatment. The immediate unreal, Blecher’s core allegory and the elusive topos

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of his novels, lies behind the deceitful surfaces of cold hard matter articulating the world of objects, old houses, provincial fairs, peripheral spaces, and, ultimately, the body and its torment. Medical intervention is a double agent in Blecher’s writing: primarily, it aims to restore health (or achieve a better state) while at the same time confirming the futility of action and the aggressiveness of pain. Max Blecher’s novels *Scarred Hearts* and *The Lightened Burrow*, fictional renditions of his experience as a patient in various sanatoria, abound in exhaustive descriptions of medical acts performed on a frail, disintegrating body. Although I will mainly focus on Blecher’s novels, it is essential to mention that his private correspondence with his friends Geo and Elly Bogza, Șașa Pană or Pierre Minet is equally relevant to an exploration of the medical dimension of this writer’s work.

I intend to argue that medical interventions shape and give consistence to Blecher’s mapping of alienation as hallmark of modern sensibility. The “terrible question of who I actually am” (Blecher [1936] 2015: 4), opening the *Adventures in Immediate Irreality*, still echoes in the illness narratives of his later novels, as it no longer targets the ineffable inner world of an adolescent alter-ego, but the diseased outer shell, the tuberculosis-ridden body. I also want to integrate Blecher’s work into an extensive cultural tradition that bridges the gap between literature and medicine. As Stephanie M. Hilger argues in a recent critical exploration aimed at “bridging the divide between literature and medicine”, the latter “is not a hard science per se; rather, it is an interpretive approach that combines scientific and humanities-based modes of knowledge” (Hilger 2017: 2). Although epistemologically divergent, these domains share a solid common ground, based on their interest in the centrality of the body as the object of a vast and diverse exploration. Medicine’s scientific perspective often permeates the literary and new areas of study emerged in this privileged intersection, such as medical humanities, disability studies, narrative medicine, to name just the most prominent ones. Stephanie M. Hilger (2017: 1) mentions a cardinal moment in the articulation of this dialogue between disciplines, Friedrich Schiller’s inaugural lecture at the University of Jena, where, on May 26, 1789, he was appointed professor of history. Schiller’s approach to the separation of professional realms followed a clear dichotomy, that between *Brothgelehrte* (bread scholar) and *philosophische Kopf* (philosophical head), in which he saw the divide between the carefully guarded domain of the scholar who wants to maintain exclusive control over his area of expertise, and quite directly, over his source of income, and the Enlightenment ideal of the universal scholar, whose goal was to integrate any particular type of knowledge into a general frame. A physician as well, Schiller, the writer and historian aimed to stimulate a dialogue between the arts, focusing primarily on the mind and the sciences, mostly interested in observable experience and the body itself. A solid tradition certified the apparently insurmountable gap between science and the
humanities, as in Schiller’s example of physicians being part of the professional group that is segregated from the general framework of knowledge concerning the human condition (Hilger 2017: 3). Various fields in the humanities tried to connect their perspective and methodology to those of scientific approach, and comparative literature is one of the humanistic realms that made consistent efforts to establish a valid dialogue with medicine. In the cardinal inaugural number of the *Literature and Medicine* journal, Edmund D. Pellegrino, a professor of bioethics and medicine, argued that these apparently irreconcilable domains “are ways of looking at man and both are, at heart, moral enterprises. Both must start by seeing life bare, without averting their gaze. Yet, neither can rest in mere looking. To be authentic they must look feelingly – with compassion” (Pellegrino 1982: 19). They also share “the need simultaneously to stand back from, and yet to share in, the struggle of human life. They must see clearly but they must also be involved in the outcome of the struggle” (Pellegrino 1982: 19). Indeed, one of the main achievements of this dialogue is that it favours ”subtle encounters of persons and matters medical with persons and matters literary” (Pellegrino 1982: 23).

In the case of the medical dimension of Blecher’s work, these encounters favour the emergence of a unique literary perspective, one that fictionalizes biography and recreates, in exhaustive detail, the torment of the medically treated body, the pain of the primitive and violent procedures meant to heal, and the dramatic consequences on the consciousness and identity of his autobiographical characters. Blecher’s illness, a particularly destabilizing one, is, in many ways, the unseen central character of his novels, particularly of *Scarred Hearts* and *The Lightened Burrow*. The writer’s focus on describing the action and effects of medical intervention goes beyond his interest in adding a concrete, direct, and undeniable value of authenticity to his confessive tone. Blecher, the young writer hopelessly suffering from Pott’s disease, explores in detail the brutal force various treatments have on his alter ego characters, in order to reveal and document the paradoxical impact medical intervention has on the patient: instead of healing, it causes new wounds, instead of providing hope, it maximizes uncertainty and discomfort. And, most importantly, instead of alleviating pain, it exacerbates and turns it into the main focus of the character’s life. Blecher’s bone tuberculosis, although a real biographical incident, could be read as a reinterpretation of a romantic trope, that of the spiritualizing disease. An extensive critical body (Bryder 1988; Byrne 2011; Tankard 2018) explores the significant impact tuberculosis had on the Romantic imagination, focusing on the various manner in which literature captured the social, artistic, and economic dimension of a widely spread disease that, until the middle of the XXth century, was incurable. As Susan Sontag argues in her seminal essay *Illness as Metaphor*, tuberculosis exerted a particular type of
fascination over the romantic age, one that had little, if anything to do with the actual misery of the disease (Sontag 1979: 30).

Indeed, Max Blecher refused to glorify his suffering, as he found it repulsive and unworthy of praise. In a letter to his friend, the writer Geo Bogza, he confessed: “All of last week it was impossible for me to write to you (I have been unwell, but I’ve set my mind to not writing to anyone details concerning my illness as I find it repulsive to describe and flaunt the filth as a ‘martyr’s window’)” (Blecher 2017: 694).

Tuberculosis was a tremendously complex disease that greatly affected the patients quality of life, as medical professionals and authors describe in various scientific descriptions of the malady. Blecher started to feel ill shortly after his arrival in France, and it remains unclear if he enrolled in medical school in Rouen or Paris. According to his sister, Dora Wechsler Blecher, the actual beginnings of the disease might have been connected to an accident her brother suffered as an adolescent, during a football game when he was powerfully hit in the lumbar region by another player. “The diagnosis was wrong. It was a badly treated microbial infection, not tuberculosis, as doctors had said” (Dora Wechsler Blecher, in Blecher 2017: 964). The writer’s biographer, Doris Mironescu, reiterates this hypothesis in his Life of M. Blecher. Against Biography (2018: 9). It seems that while in Techirghiol, the previous year, as he was seeking cure for his back pain, the writer expressed his conviction that he would have to be admitted into a sanatorium soon, as he was feeling unwell. Later, Emanuel, the protagonist of Scarred Hearts, would express the same feeling.

The course of Pott’s disease can be misleading, and infection can precede the clinical manifestation of the disease by many years. Michel Martini, one of the most prominent authors who explored its history (Martini 1988: 3), noted that there was little scientific knowledge regarding it before 1882, when Robert Koch made the revolutionary discovery that tuberculosis was caused by a microorganism, the “Bacillus tuberculosis”, as he called it. Despite the fact that Percival Pott described the disease in 1779, a century had passed before the etiology and pathological mechanism of the disease was understood. Even after Koch’s breakthrough, treatment options were extremely limited, as surgery involved a high risk of spreading the pathogen and aggravating the patient’s condition. Pott’s disease starts in the lungs, with a lesion that may remain dormant for a long time, even from childhood to adolescence or adulthood. Moreover, as Michel Martini noted, in rare cases, the disease may be the result of an infection developed as a result of an external wound. Therefore, Dora Wechsler Blecher’s opinion regarding her brother’s illness may be valid, after all.

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2 My translation; all quotations from Blecher’s correspondence are my translation, as well.
3 My translation.
Although sickness and notions pertaining to the pathological are widely present in Blecher’s first novel, *Adventures in Immediate Irreality*, medical treatment and the experience of medical trauma become the focus of his sanatoria novels, *Scarred Hearts* and *The Lightened Burrow*, with the latter bearing the subtitle “Sanatorium Diary”. *Scarred Hearts*, published at the end of December 1936, is his second novel, written under the spell of the critical acclaim of *Adventures*..., published earlier that year. An alter-ego of the author as well, the protagonist of *Scarred Hearts* (Blecher’s initial title was *Țesut cicatrizat* [Scar Tissue]) is Emanuel, a Chemistry student in Paris, who discovers that he suffers from Pott’s disease and, as a consequence, becomes a patient at the Berck sanatorium. The novel begins with Emanuel climbing “the dark staircase” and the air smelling “faintly of pharmaceutical products” (Blecher [1937] 2008: 1), predictably setting the atmosphere for an extensive account of the young man’s experience with both disease and the medical discourse and practice meant to cure it. The first part of a projected trilogy, covering his experience at Berck-sur-Mer, Leysin, and Techirghiol, *Scarred Hearts* is the account of a brutal awakening to the reality of a disintegrating body. As he was lying naked on the X-ray table, Emanuel felt excluded from life, hidden “beneath the shelter of his coat” (Blecher [1937] 2008: 5), as he would later feel withdrawn behind the solid shell of his orthopaedic cast. The doctor explains Emanuel’s medical situation in clear, razor-sharp terms “one of your vertebrae has been badly attacked...There is a piece of bone missing from it...[...] it has been eaten away...eaten away by microbes [...] all wasted away...like a decaying tooth” (Blecher [1937] 2008: 5). The patient promptly thought “why hasn’t my body collapsed yet [...] since the very axis of its support is broken?” (Blecher [1937] 2008: 6). The episode regarding Emanuel’s first consultation with the doctor who diagnosed him with Pott’s disease is particularly relevant for this critical exploration, due to the obvious interplay of subject/object of medical investigation and the cardinal role of the “gaze” as instrument and intermediary of the medical act. In Michel Foucault’s *The Birth of the Clinic*, the “medical gaze” (Foucault 2003: 9) is a cardinal factor connecting medical knowledge, discourse, and various power structures. Foucault stresses the idea of ”the strange character of the medical gaze; it is caught up in an endless reciprocity. It is directed upon that which is visible in the disease – but on the basis of the patient, who hides this visible element even as he shows it; consequently, in order to know, he must recognize, while already being in possession of the knowledge that will lend support to his recognition” (Foucault 2003: 9). Inside the rich framework of 18th century rationalism, which marked the emergence of modern epistemological structures greatly influencing scientific progress, Foucault is interested in the particular manners in which medical discourse and its main agents, medical doctors, revealed invisible, hidden pathological processes.
Foucault’s original notion, “regard”, is closer in meaning to “perception” than to “gaze”, which, however, is defined by steadiness, eagerness, and studious attention (according to the Merriam Webster dictionary⁴). In Blecher’s autobiographical fictions, seeing and observing are acts performed by a split consciousness, one that simultaneously retraces biographical events and empowers the narrative voice to articulate them. Along with central metaphors such as the cavern, the burrow and the cave, transparency and clarity of vision “lighten”, illuminate and make visible the secret, unseen processes that generate and sustain pathology. In Blecher’s sanatoria novels, “irreality” derives from the imposed detachment from a frail, vulnerable body in pain.

Emanuel’s justified anxiety that his body might crumble in the street and he would turn into “a heap of smoking ash” (Blecher [1937] 2008: 12) announces a long interval in which medical intervention would cut, penetrate, excavate, excise, extract, and encase smaller or larger parts of his body. At the beginning of this dramatic journey and later, as well, “the doctor calmed him with scientific and medical arguments” (Blecher [1937] 2008: 12). However, Emanuel was convinced that „he, Emanuel himself, was no more than a mass of meat and bones, sustained only by the rigidity of a profile” (Blecher [1937] 2008:13). His identity had shrunk to an extent that he was merely a case, a diagnosis and the body that fit the characteristics of a disease. Emanuel’s abscess constituted, nevertheless, a medical emergency, and had to be punctured. In Dr. Bertrand’s office, the young man fearfully observes the preparations the doctor and his assistant make for the procedure. Instruments are aligned, substances are placed at hand, and the “metallic tinkling” (Blecher [1937] 2008: 18) of the recipients add to the patient’s anguish. Iodine, an antiseptic and an anaesthetic form the basic yet unfamiliar triad of pharmaceuticals that start the procedure. Emanuel was desperately trying “to spot some instrument of torture, to make out the size of the needle” (Blecher [1937] 2008: 18), but seeing would soon be overpowered by feeling, as “he felt a heavy jab next to his hip, like someone punching him with all their might. It was a dull, undefined pain that weighed horribly on the pelvis. A claw clenching into flesh frozen by the anaesthetic, a torture both detached and extremely present” (Blecher [1937] 2008: 19). Medical intervention as torturous “exercise” in the immediate irreality (as Blecher intended to name his debut novel) becomes, in this first chapter of Scarred Hearts, the predicted strategy the writer involves in order to map a vast continent of alienation. Along with it, the setting of his character’s strange and painful metamorphosis is a place of concrete, geographical seclusion, the maritime city of Berck-sur-Mer, built around a tuberculosis sanatorium. There, he would befriend other patients, have extreme sexual experiences and suffer, with the endurance of martyrdom, the unbearable burden of having his torso encased in plaster while at the same time witnessing his fellow sufferers’ corporal decay or untimely demise. An enclave of disability and hopelessness, Berck is, for many Pott’s disease patients, the last station before death.

⁴ https://www.merriam-webster.com/dictionary/gaze
Blecher’s heterotopia (Foucault, in Faubion (ed.) 1998: 175; see also Mironescu 2017: XX) of the sanatorium is also a heterotopia of crisis, as Foucault further details upon various classes of spaces that have “the curious property of being connected to all the other emplacements, but in such a way that they suspend, neutralize or reverse the set of relations that are designated, reflected or represented [réfléchis] by them. Those spaces which are linked with all the others, and yet at variance somehow with all the other emplacements…..” (Foucault, in Faubion (ed.) 1998: 175). In Blecher’s fictions, disease marks a crisis that could only end in stagnation or death.

Upon his arrival in Berck, Emanuel would notice the strange, otherworldly atmosphere of that city of the sick, where almost all inhabitants carried on with their daily routine while lying on their backs, in special carriages adapted to their unusual needs. During his first days there, Emanuel would be subjected to the traumatizing procedure of being placed in a cast. The doctor’s reassurance that “a cast is nothing to be afraid of” (Blecher [1937] 2008: 32) would prove misleading and wrong. To Emanuel, it was a confirmation that he, too, would share the fate of the man he saw after his arrival, who seemed to be lying in a “mobile coffin” (Blecher [1937] 2008: 28). When an attendant comes to dress him, the thinks “He’s dressing me exactly like he would a corpse” (Blecher [1937] 2008: 36). With his torso in a cast, he feels that “the shell held him hermetically sealed, immobile, overpowered, crushed as if by a boulder. ‘Farewell, Emanuel!’ he tells himself. ‘You’ve turned into a dead man’” (Blecher [1937] 2008: 72).

The procedure by which a Pott’s disease patient received a cast was rather banal, the real torment would begin after the hard shell became solid and the skin underneath it became irritated. What began like a harmless process would soon turn into a painful, maddening experience, and, after a rather long interval in which the frustration of captivity reached its zenith, the patient would be liberated, with large portions of fragile skin once again ready to take on new challenges. Trapped inside his artificial shell, Emanuel could feel that “in places the plaster was heavy with water. Next to the ribs a neutral space emerged where his breathing could break free from time to time before quickly gluing itself again to the coldness. The electric light intensified his surroundings and increased his anguish at each and every object. Darkness was easier to bear” (Blecher [1937] 2008: 78).

The young man found comfort in the friendship of other patients, and tragic figures, such as Quintoce, made a strong impression on him. Sick since childhood, Quintoce was preparing for his twelfth operation. He would proudly show off the scars on his body, like a true professional patient, as he would bitterly declare, after confirming that he knew “by heart the geography of bone disease clinics” (Blecher [1937] 2008: 83). Soon after, he died in a catastrophic outburst of laughter, as the final stage of his disease often involved such uncontrollable, unexplained reactions.
From his initial X-ray examination to his dramatic stay in Berck, Emanuel’s journey as a sick young man is clearly defined by Blecher’s constant metaphor of the transparent body – “the most intimate, secret structure of his body was printed there in dark, funeral transparence” (Blecher [1937] 2008: 7); later, in the eerie light of a bedroom lamp, his face would gain a “translucent appearance” (Blecher [1937] 2008: 120). Open and available to the medical gaze, to the cold, rational light of scientific interpretation, the sick body of Blecher’s protagonist would, however, remain mysterious and unreal. His love affair with Solange, his vivid, desperate dream of spring and revival, his regret for the massive wastage of life that disease generates, all remain unanswered existential questions of the young artist, the writer himself.

In his essential 1941 History of Romanian Literature from its Origins to the Present, George Călinescu considers Blecher’s second novel thematically similar to Thomas Mann’s Magic Mountain, a lesser version of a universal masterpiece. Several decades later, a new generation of critics revisited Romanian interwar modernism, placing Max Blecher and his experience of the unreal at the centre of a new version of the literary canon. More recently, a film adaptation of Scarred Hearts addresses the question of Blecher’s political body.

Blecher’s final novel, written until the very last days of the writer’s life, was published posthumously, in 1971. Despite the lesser extent of the critical attention it received, The Lightened Burrow is Blecher’s quintessential oeuvre. A lyrical elegy for the ailing, alienated, dying body, the novel, subtitled Sanatorium Journal, is, indeed, a hallucinatory account of the severely ill man’s journey through various sanatoria (Blecher’s Berck-sur-Mer, in France, Leysin, in Switzerland, and Techirghiol, in Romania). Witness to his own body’s irreversible degradation, the protagonist is, once again, an auto-fictional projection of the writer himself, seeking relief and refuge in the face of tremendous affliction. The real protagonist is, in fact, the body in pain, open, dissected, disinfected, belonging more to the medical personnel and the medical institution than to the patient himself. "Everything I write once was real life” (Blecher [1938] 2017: 321) the confessional narrative of the Lightened Burrow states, as the novel begins. The sanatorium becomes the definitive “sickly space” of Blecher’s fiction, dramatically overshadowing the periphery of his childhood native town, where he would experience his first encounters with the unreal. Here, the sounds of unbearable pain would often pierce through the heavily smelling air impregnated with the acute persistence of disinfectants, anaesthetic, and various other substances of medical use. The protagonist’s own pain rivals that of his

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5 Radu Jude’s 2016 film Scarred Hearts; Jude involves the issue of Blecher’s political body and implicitly reopens the question of the writer’s Jewishness in the context of Romania’s history of the 1930s, when The Iron Guard, an extreme right fascist organization, gained influence and later seized power.

6 Blecher’s novel hasn’t been translated into Romanian, therefore all translations are mine.
fellows’, as medical intervention is presented as brutal incision and exposure of raw flesh. Another young man would endure maddening pain, as pure aether would be poured onto his testicles, and he would be screaming, “rattling and crying savagely [...] as if it seemed that at the end of the scream he would expire forever” (Blecher [1938] 2017: 365). His own interventions were no less savage, and, with the declared intention of leaving the wound open to fresh air, the protagonist would expose the physical mark of his suffering, making it visible: “It was towards the end of summer and, in order that the wound wouldn’t become infected during those still extremely hot days, they left it completely open, meaning they did not sew it at the margins, so that it was open to the bottom of the muscles, like a splendid piece of red bleeding butchery meat” (Blecher [1938] 2017: 395). Anaesthetic sleep, induced by chloroform, favours suicidal fantasies and the protagonist hopes that the rapid inhalation of the gas may cause respiratory failure. A place of no escape, the body continues to keep him captive, torture him and undermine his every hope that, in nightmares or in visions, he may free himself from the dreadful “burrow” of flesh and blood. A stoic exercise would give him the illusion that pain could be conquered and mastered on the long run. While other patients needed general anaesthesia in order to be bandaged, he managed to endure the overwhelming amount of pain triggered by the procedure, “without a scream, or at least a groan” (Blecher [1938] 2017: 395). Complications were common, as the body would often give in, under the immense pressure of disease, medical procedures and open wounds. The protagonist confirmed the gravity of such misfortunes: “It is incredible how painful the slackening of a long-ankylosed joint can be, constantly kept motionless, without the slightest movement, with muscles atrophied to an extreme. I was, therefore, in this situation, with cramps, alcohol in my thigh and an extension hanging off my leg” (Blecher [1938] 2017: 403). Once again, puncturing pus deposits in the thigh proved impossibly painful, even more so as the procedure could not be done under anaesthesia. “A thick needle, the size of a small pipe” (Blecher [1938] 2017: 398) was used to extract the collected pus, and also to introduce an alcohol-based antiseptic in the same place in order to prevent infection.

The medical alienation of the body has, as a direct consequence, a consolidated relation with the oneric and the unreal. The narrative of The Lightened Burrow facilitates the blurring of the border between imagination and the real. In Blecher’s final writing, medical action is a solid passage to the interior territory he was keen on mapping since his beginnings as a writer.

Although his private correspondence is a valuable resource for documenting Blecher’s experience with medical intervention, it is his two major novels, Scarred Hearts and The Lightened Burrow, that fundamentally explore the issue, turning it into one of the writer’s most relevant trademarks.
REFERENCES


Mironescu, D., 2017, *„Studiu introductiv” [“Introductory Study”], in M. Blecher 2017: V-XXXVII.


Pott, P., 1779, *Remarks on that kind of palsy of the lower limbs: which is frequently found to accompany a curvature of the spine, and is supposed to be caused by it; together with its method of cure: to which are added, observations on the necessity and propriety of amputation, in certain cases, and under certain circumstances*. J. Johnson, No. 72, St. Paul’s Church-Yard. M DCC LXXIX.


Max Blecher’s soul was a fearless journalist who reported what his hypersensitive senses and immense intelligence uncovered about the world we think we know. “The world as definitively constituted had lain waiting inside me forever and all I did from day to day was to verify its obsolete contents.” After the discovery that this is not the real world, he finds it to be the projection of a text that tells a story which erases the world as it appears to be: “All at once the surfaces of things surrounding me took to shimmering strangely or turning vaguely opaque like curtains, which when lit from Page dedicated to the Romanian writer Max Blecher. We begin by introducing a brief historical sketch of the author’s life and central work. Following this, we compare some of his vivid experiences with a number of phenomenological EASE dimensions, i.e. anomalous bodily experiences, such as described in the checklist. However, we would like to indicate that our claim is not to make any assumptions concerning the normal or pathological nature of the experiences, but to point out some similarities between Blecher’s beautiful and insightful accounts and some of the EASE formulations. Bone marrow (BM) contains a small resident cell population referred to as “multipotent mesenchymal stem cells” (MSC). These adherent cells could be isolated and expanded in simple culture media and may differentiate in adipogenic or osteogenic pathway. So far an opportunity of MSC differentiation to hepatocytes, brain, or renal cells is not proven yet. We have not find any works concerning systemic MSC infusions for immediate treatment of children with OI after corrective osteotomy of femoral and/or tibial bone. Rationale and design of the ongoing study. Ex vivo-expanded bone marrow stem cells home to the liver and ameliorate functional recovery in a mouse model of acute hepatic injury. Hepatobiliary Pancreat Dis Int 2012;11(1):66-73.