LETTER FROM A YOUNG SCIENTIST: IT IS INHERENT TO HUMANS TO DEPART – SCIENCE, HUMANITIES, AND THE IMPASSE OF RETURN

CARTA DE UMA JOVEM CIENTISTA: É PRÓPRIO DO HUMANO SAIR – CIÊNCIA, HUMANIDADES E O IMPASSE DO RETORNO

CARTA DE UNA JOVEN CIENTÍFICA: ES PROPIO DEL SER HUMANO PARTIR – CIENCIA, HUMANIDADES Y EL IMPASSE DEL RETORNO

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ABSTRACT

This essay, presented in the form of a letter, proposes a critical reflection on the limits of biological reductionism in contemporary science, taking as its starting point the need to rearticulate different forms of knowledge. Based on a formative trajectory situated in the field of health sciences, the author questions the predominance of a technical-productivist logic that tends to privilege already stabilized answers, often at the expense of formulating questions. This shift is not trivial, as it contributes to the impoverishment of scientific reflection and widens the gap between science and society. It is in this context that the movement toward the humanities appears less as a rupture and more as an attempt at epistemological and formative expansion, albeit marked by persistent resistance. Throughout the text, references from philosophy, literature, and the history of science are mobilized to challenge the persistence of a mechanistic and dualistic matrix, historically associated with modern thought, and its effects on the fragmentation of knowledge. At the same time, it is argued that many contemporary initiatives aimed at humanizing science end up being limited to compliance with normative frameworks, without implying a deeper transformation of scientific practices. In this scenario, literature is presented as a privileged space for the exercise of critical reflection, insofar as it enables engagement with dimensions of human experience that escape strictly technical logic.

Keywords: Science. Humanities. Reductionism. Interdisciplinarity. Scientific Education.

RESUMO

Este ensaio, apresentado em forma de carta, propõe uma reflexão crítica sobre os limites do reducionismo biológico na ciência contemporânea, tomando como ponto de partida a necessidade de rearticular diferentes formas de conhecimento. Partindo de uma trajetória formativa situada no campo das ciências da saúde, a autora interroga a predominância de uma lógica técnico-produtivista que tende a privilegiar respostas já estabilizadas, muitas

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vezes em detrimento da formulação de perguntas. Esse deslocamento não é trivial, pois contribui para o empobrecimento da reflexão científica e amplia a distância entre ciência e sociedade. É nesse contexto que o movimento em direção às humanidades aparece menos como ruptura e mais como tentativa de ampliação epistemológica e formativa, ainda que atravessada por resistências persistentes. Ao longo do texto, referências da filosofia, da literatura e da história da ciência são mobilizadas para tensionar a permanência de uma matriz mecanicista e dualista, historicamente associada ao pensamento moderno, e seus efeitos na fragmentação do conhecimento. Ao mesmo tempo, argumenta-se que muitas das iniciativas contemporâneas de humanização da ciência acabam se restringindo ao cumprimento de normativas, sem que isso implique uma transformação mais profunda das práticas científicas. Nesse cenário, a literatura é apresentada como um espaço privilegiado para o exercício da reflexão crítica, na medida em que possibilita o contato com dimensões da experiência humana que escapam à lógica estritamente técnica.

Palavras-chave: Ciência. Humanidades. Reducionismo. Interdisciplinaridade. Formação Científica.

RESUMEN

Este ensayo, presentado en forma de carta, propone una reflexión crítica sobre los límites del reduccionismo biológico en la ciencia contemporánea, tomando como punto de partida la necesidad de rearticular diferentes formas de conocimiento. A partir de una trayectoria formativa situada en el campo de las ciencias de la salud, la autora cuestiona la predominancia de una lógica técnico-productivista que tiende a privilegiar respuestas ya estabilizadas, muchas veces en detrimento de la formulación de preguntas. Este desplazamiento no es trivial, ya que contribuye al empobrecimiento de la reflexión científica y amplía la distancia entre ciencia y sociedad. Es en este contexto que el movimiento hacia las humanidades aparece menos como una ruptura y más como un intento de ampliación epistemológica y formativa, aunque atravesado por resistencias persistentes. A lo largo del texto, referencias de la filosofía, la literatura y la historia de la ciencia son movilizadas para tensionar la permanencia de una matriz mecanicista y dualista, históricamente asociada al pensamiento moderno, y sus efectos en la fragmentación del conocimiento. Al mismo tiempo, se argumenta que muchas de las iniciativas contemporáneas de humanización de la ciencia terminan restringiéndose al cumplimiento de normativas, sin que ello implique una transformación más profunda de las prácticas científicas. En este escenario, la literatura se presenta como un espacio privilegiado para el ejercicio de la reflexión crítica, en la medida en que posibilita el contacto con dimensiones de la experiencia humana que escapan a la lógica estrictamente técnica.

Palabras clave: Ciencia. Humanidades. Reduccionismo. Interdisciplinariedad. Formación Científica.

1 INTRODUCTION

1.1 IT IS CHARACTERISTIC OF THE HUMAN WANTING TO LEAVE AND OF SCIENCE, TO RELEARN THIS GESTURE

Like so many other scientists, what first moved me was the desire to understand the human being from its biological dimension. I started with anatomy; And when it no longer offered me enough answers, I moved on to smaller and smaller structures, to progressively more complex systems, invisible to the naked eye, but central to what we understand as life. There was, in this movement, a clear logic: the deeper the look, the greater the possibility of understanding. However, it was precisely when I got closer to this microscopic universe that something unexpected happened. I was led to leave. This movement was not abrupt. There was no rupture, no founding crisis. Just like Ulysses in his crossing, the exit imposed itself almost as a natural unfolding of the path itself. From the micro, I was led to the macro not out of abandonment, but out of necessity. It is from this experience that I propose this reflection, inspired by the work It is proper to the human, by Dante Gallian, which describes human movement as a constant coming and going between interiority and exteriority. Entry, exit and return: three gestures that, more than stages, constitute the very condition of being. In my case, the realization that biology would not account for the totality of the human was not devastating. There was no disenchantment, there was recognition. As if, from the beginning, something already knew that this would not be the only way. So I did what I learned to do as a scientist: I looked for what was missing. And it was in this gesture that I found the humanities. The approach, however, was not only due to intellectual curiosity, it also emerged from a discomfort. All around me, I noticed signs of exhaustion: exhausted colleagues, unmotivated teachers, trajectories marked by a fatigue that seemed to exceed the limit of the physical. There was something that could not be explained only by the data, the techniques or the institutional requirements.

Gallian offers us a powerful image to think about this state:

> Just as the constriction of a growing organism can lead to its death (imagine a fetus that refused to leave the mother's womb), the closure or limitation of the soul also ends up compromising its vitality, its health. The soul wants to go out, it needs space, and everything that hinders its growth dwarfs it; and a small soul is a sick soul. (p.37)

This idea echoed in me strongly. I began to recognize, in the academic experience, subtle forms of enclosure. Not because of a lack of intelligence or sensitivity, but because of structural constraints that limit movement. It is often said that it is necessary to expand, that there is life beyond the university, however, little is taught about how to carry out this displacement. And, if

it were indeed an accessible path, perhaps we would not witness so many processes of illness within the academy itself. It is not a question of incapacity. Many see, understand, intuit the need to go out. But there is a lack of conditions: material, institutional and, above all, training. The very logic of scientific production contributes to this. The scarcity of resources and the constant pressure for productivity create an environment in which staying in the already established becomes not only easier, but safer.

When I began my movement toward the humanities, I heard over and over again that I had chosen the simplest path. As if reflecting were less demanding than executing; as if thinking were a spontaneous and uncompromising exercise. But there is something profoundly wrong in this perception: having your own idea is perhaps one of the most difficult tasks that exists. In science, we are trained to answer questions; rarely to formulate them. We learn to look for references, to support arguments, to validate hypotheses. All of this is fundamental. However, the origin of science: astonishment, questioning, restlessness is gradually being silenced. It was in this context that I sought, during my doctorate, a discipline focused on poetic writing, offered by the Center for History and Philosophy (CeHFi) at UNIFESP. Initially, I just wanted a breather. A space that, even if accounted for in credits, would give me back some kind of pleasure. What I found, however, was a deeper displacement. I realized that my writing had become automatic. In healthcare, the production of articles is often structured as a repeatable model: efficient but predictable. Over time, one writes without thinking about the act of writing. And, in this process, something is lost.

Writing ceases to be creation and becomes execution.

The contact with poetry produced a strangeness in me. For the first time, it was not enough to know how to do it. It was necessary to have something to say and I didn't. This observation was, at the same time, disconcerting and revealing. I, who considered myself creative within science, could not produce an idea outside its molds. It depended on directions, themes, external stimuli. What I thought was creativity was, to a large extent, a response. In sharing this experience, I encountered predictable reactions: the discipline was seen as easy, almost irrelevant. His interest in the humanities aroused strangeness, sometimes even distrust. But, over time, I realized that this was not an objective evaluation of difficulty. It was the discomfort in the face of the displacement. Going out is uncomfortable. It bothers those who leave, but also those who remain. Because the movement of the other can be perceived as an invitation and we are not always willing to accept it. This tension is accurately expressed in "The Tale of the Unknown Island", by José Saramago. In it, the desire to leave comes up against

fear, self-indulgence and the absence of means. The crossing is not impeded by impossibility, but by resistance.

In science, this scenario is repeated.

Many feel the impulse to go further, to seek new ways of thinking, to integrate knowledge. However, few actually carry out this movement. Not for lack of desire, but for the costs it implies: more work, more uncertainty, more need for justification. Thus, contemporary science tends to focus on technical improvement. We refine methods, speed up processes, optimize results. This advance is undeniably important. But it is accompanied by a silent impoverishment: the reduction of the ability to formulate new questions. We are becoming experts in answers, but less and less accustomed to questioning. This distancing is not only epistemological; it is also social. By moving away from people's concrete experiences, we become less able to dialogue with them. And when this dialogue breaks down, there is room for mistrust. It is not surprising, therefore, that movements to question science are gaining strength. They arise not only from ignorance, but also from the absence of bonding. In view of this, a recurrent discourse emerges: the need to humanize science. However, this humanization often remains on the surface. It is recognized that there is a subject behind the object of study, but it is not deepened what this means. There is a lack of density, a lack of training, a lack of experience. In healthcare, we are highly qualified to understand the body, but when we go beyond this dimension, our tools become limited. Even the most expanded approaches rarely escape a logic that is still centered on the biological. And here lies a fundamental contradiction: in order to humanize science, it is necessary to allow the scientist to leave the "pedestal" and find experience based on reality. But the way of doing science does not favor and has never favored this possibility.

On the contrary, it requires continuous productivity, absolute neutrality and the erasure of subjectivity. Living, the experience, the singular look, everything that could enrich the construction of knowledge, is often delegitimized; If, on the one hand, science has theoretical knowledge of phenomena, practice in its entirety only occurs when there is a union of theoretical knowledge, technique and experience in the real world, since no protocol contemplates the subjectivity of life. In this process, the movement to leave is abandoned. However, this movement, this need to go out, although it may be ignored for some time, does not remain forgotten indefinitely. At some point, something erupts, something displaces, tenses, pushes; Whether on the individual or collective level, the impulse returns. Human beings can resist, science can postpone, but the way out, sooner or later, is imposed. And perhaps what we are witnessing today is precisely one of these impositions. The growth of anti-science movements does not arise in a vacuum. It is, in part, the consequence of a prolonged estrangement; We

have distanced ourselves from society, and now we see this distancing reverberating back, putting at risk the very sustainability of scientific activity. Because science does not exist without society. And that's something that, for a long time, we allow ourselves to forget. Even in its most technical view, in the biological and health sciences, there is an implicit direction towards human well-being. Even if we study animals, cells or abstract systems, ultimately, the question returns: what does this mean for the human being? We produce knowledge, to a large extent, focused on ourselves. There is, in this gesture, a certain "structural selfishness", not necessarily negative, but rarely problematized and, even so, paradoxically, we distance ourselves from people. It is in the encounter with the world, with the other and with the unknown that we recognize ourselves. Not just in thought, but in action. Not only in theory, but in experience. And, in the case of science, this experience requires concrete displacement, it is not enough to produce knowledge within the limits of the laboratory, it is necessary to cross these borders. Stepping into the real world, entering social spaces, living with those who are outside the academy. Because it is in this encounter that knowledge gains meaning.

Within the university, the logic of scientific production is already known. A graduate student knows what he needs to do to become a researcher. He masters the codes, understands the paths, recognizes the rules. The problem is not in the absence of knowledge, but in its circulation, knowledge remains retained. We produce a lot, but little of it crosses institutional walls, little reaches society, little seems to directly impact the lives of those outside this circuit, since few are capable of understanding scientific articles, which can lead to questioning their validity; What is the use of work that can only be understood by scientists? And, in view of this, a predictable perception is built: that science is inaccessible, distant, ultimately irrelevant. People don't see what we do, and what you don't see easily becomes what doesn't exist. If scientific work is not presented in concrete form, if it is not translated into perceptible experiences, then it is not difficult to understand why, for many, it seems to have no value. In this sense, returning to a formulation dear to Gallian, the central question may no longer be or not to be. In science, it is about something more direct: to do or not to do. And here, doing is not reduced to the internal production of knowledge. Doing implies making visible, sharing, transforming. As long as we remain restricted, formulating questions and answering them among ourselves, we will continue to be perceived as a closed circuit. And if no one sees what we do, the conclusion, even if mistaken, becomes understandable: that we do nothing. And from there, the leap is short: that science is useless.

2 ONE DOES NOT RETURN FROM WHERE ONE HAS NEVER LEFT: SCIENCE AND THE IMPASSE OF RETURN

If you're a scientist, you probably recognize the scenario I've been describing. Unless you inhabit a space where knowledge itself is taken for granted, it is not difficult to perceive that something is in tension. We live in a moment in which discourses about humanization, about appropriate language, about more sensitive practices are multiplying. Advisors remember the past, emphasizing how much worse it used to be, as if the simple comparison with harder times was enough to validate the present. And, in fact, it cannot be denied: there have been changes. Over time, part of the scientific community began to recognize flaws in the way science was done. And, within the possibilities they had, many researchers tried to transform their immediate spaces; creating more welcoming environments, less violent relationships, more conscious practices. I do not assume that scientists are, in essence, cruel. I prefer to understand this process as historical. Science itself, at different times, has been stressed to review its limits.

An important milestone in this movement is the Nuremberg Code, which establishes fundamental principles for research involving human beings, such as:

- The voluntary consent of the human being is absolutely essential
- The experiment must be such as to produce results advantageous to society, which cannot be sought by other methods of study, but cannot be done on a case-by-case basis or unnecessarily
- Special care should be taken to protect the experiment participant from any possibility of harm, disability, or death, even remotely.
- The experiment participant should be free to withdraw during the course of the experiment.

These principles were, and continue to be, essential, they represent a civilizational achievement. They delimit an ethical minimum necessary for research not to reproduce historical violence, but it is precisely here that a crucial point arises: this minimum is not enough. Comply with protocols, obtain approval from ethics committees, follow institutional regulations; All this ensures that abuses are not committed, but it does not guarantee, by itself, that science is, in fact, humanizing. If that were enough, we would not be facing so much criticism today. What is observed, in practice, is that many health professionals understand this set of rules as the humanization movement itself, as if, by complying with ethical requirements, the exit had already been carried out, but it was not. What happened was, in many cases, a premature return, a return to the interior of the area itself, with the feeling of accomplishment, it is at this point that criticism needs to be made, not to deny the advances, but to highlight their limits.

To make more concrete what I argue when I say that a set of norms is not, by itself, sufficient, I use an example. I argue that such regulations are fundamental to guarantee basic rights, which already represents a significant advance in the history of science. However, this does not necessarily equate to the production of a science that is truly committed to society. In this sense, the case presented in the documentary *Three Identical Strangers* is illustrative. The work portrays the true story of triplets who were separated at birth and sent to different adoptive families, without their parents knowing of each other's existence. Throughout the narrative, the siblings discover that they were part of a scientific study conducted without consent, whose objective was to investigate the impact of environmental conditions, especially different socioeconomic contexts, on the development of individuals with a family history of mental disorders.

The study, which involved several children in addition to the three siblings, consisted of separating biological siblings and inserting them into families with different social profiles, in order to compare their developmental trajectories. When the case came to light, it became a scandal, highlighting serious ethical flaws. A particularly significant aspect is the absence of clear accountability on the part of the researchers involved, who often justified their actions based on the context of the time or the lack of stricter regulations. This example clearly shows why the institutionalization of ethical norms is indispensable. However, it also allows us to advance the reflection I propose: the mere existence of protocols and their formal observance do not guarantee, by themselves, an ethical scientific practice in the full sense. What is at stake is not the need for norms, which is undeniable, but the contemporary tendency to reduce ethics to bureaucratic compliance with guidelines, as if this were enough to ensure the humanizing character of science.

It is precisely this reduction that needs to be problematized. Ethics, in this context, cannot be understood only as normative conformity, but as a broader commitment to the subjects involved and to the human implications in the production of knowledge.

> [...] the success of humanization initiatives is intrinsically linked to the ability to integrate technical and socio-emotional skills, with alterity as a central element of this transformation (Dias, L., p. 5857).

The issue that arises, and with which I agree, is that it is not possible to restrict ethics to the observance of previously established technical protocols. These protocols are fundamental as guidance instruments, as they delimit, in a more controlled way, what can or cannot be done in the scope of the research. However, the definition of what effectively constitutes a humanizing

practice is not limited to compliance with these guidelines. In other words, although ethical protocols are necessary, they are not enough, ethics cannot be reduced to a technical procedure or a normative *checklist*. It is necessary to recognize that there is a dimension that escapes formalization, requiring sensitivity, critical reflection and responsibility towards the subjects involved. Thus, the challenge is not only to follow norms, but to sustain an ethical-humanist commitment that goes beyond them.

In view of this, an inevitable question arises: what to do, then?

The proposal I bring does not come in the form of an absolutist rhetoric, but comes from a reflection, when it comes to the health area, based on biological knowledge and ethical protocols are not enough to guarantee a so-called "humanizing" practice, because they exclude what makes human beings, humans, subjectivity, it would then be necessary to bring the practice and reflection on it. Knowing that the end if a person is death is totally different from witnessing it, lacks the dimension of reflective practical experience aimed at understanding subjectivity. And, for this, literature presents itself as a privileged path; as Dante Gallian states:

> Literature, therefore, is not only art, but, precisely because it is art, it is also a form of knowledge. (p.75)

This idea was subsidized by Gregorio Marañón, a physician and scientist, who debated a greater possibility of learning about human love through reading Shakespeare than in philosophical treatises or biological writings. To illustrate this perspective, I turn to the poem *"Education through Poem II",* by Gisele Wolkoff, whose composition offers a sensitive way of approaching the idea developed here.

> Postpone the verb in the name of time: Tie the threads of discord in a single knot of forgetfulness; to bind the sweet grains and unique flour of encounter and tenderness, to sew the threads of the famous mesh of sitaxis, even if in rupture, to thicken the wheat chaff with mild rye and postpone the departure: the vowel emotioned, the reticent interjection to transform the ellipsis into light exclamations of euphoria and to integrate the soft body of the entire field

At first glance, this statement may cause strangeness or even rejection. The initial feeling may be one of discomfort: what do you mean literature would occupy this place? Literature does not require, in its most basic access, specialized training. It is available, open, accessible. And, precisely for this reason, it can work as a gateway, a first displacement. An exit movement that does not impose itself as a rupture, but as an approximation. In my own training, I had contact with a proposal that illustrates this path well. In disciplines such as bioethics and biophilosophy,

the approach was not exclusively based on concepts, but also through literature. The starting point was, perhaps unexpectedly, Mary Shelley's Frankenstein. I say unexpected because, when I started my search for an undergraduate course, I never imagined that there would be room to learn through literature. For me, reading occupied other places: it was, above all, a form of entertainment or, at certain times, a requirement linked to the entrance exam. At that stage, still with an immature view, I could not conceive that literature could also be a relevant source of reflection and knowledge applied to the health area.

For a semester, we read him not as literary critics, but as students in the health field. The objective was not to analyze the work itself, but to use it as a tool to think about scientific practice. There, in the face of the narrative, we were confronted with issues that hardly emerged only through protocols or articles: responsibility, reflection, and ethics beyond what is described in the norms. Literature, in this context, does not replace scientific knowledge, but expands it. It introduces layers of meaning that escape purely technical logic, although it is recognized, in theory, that the human being is not limited to his biological dimension, in practice there is often a lack of integration on the part of the scientist himself. Like Victor Frankenstein, the researcher may find himself taken by the impulse of curiosity and a certain duty to do, without fully reflecting on the consequences of his actions. And here I sympathize with a character who has a beginning so close to mine:

> The natural sciences were the compass of my life [...]I opened the book with apathy. But as I went deeper into the reading, the theory he tried to demonstrate and the wonderful facts he related ended up transforming that feeling into enthusiasm. A new light seemed to dawn in my mind (Shelley, M., p.38).

And here is the expression of a more primitive desire: I believe that no one chooses science without at some point having been deeply fascinated by it. One does not follow this path without something, at some point, having touched and impressed in a remarkable way. And the more one reads, understands and discovers, the more this impulse intensifies, continuously feeding a primordial desire to go further, to always seek more.

> Sir Isaac Newton is said to have once confessed that he felt like a child picking up shells on the shores of the great and uncharted ocean of truth. (Shelley, M., p.40)

So far, while reading, I could only think about how deeply I understood Victor in his essence. In this first chapter, his impulses were entirely clear to me, almost as if I saw in him a mirror of myself. However, as I read it, I began to realize how these impulses, which arose from

such a legitimate and pure place, a place I recognized, were gradually transformed. Little by little, in the midst of arrogance and lack of direction, that young scientist ended up getting lost.

> [..] having as an ally only the unbridled thirst for knowledge. Under the direction of my new masters, I threw myself, nothing more, nothing less, into the discovery of the philosopher's stone and the elixir of long life. Between the two, this last objective prevailed. Wealth was a secondary purpose, but what glory would be crowned by the discovery that would allow the banishing of disease from the human organism, making man invulnerable to all deaths, except that caused by violence! (Shelley, M., p. 40)

I remember that, at first, it was very difficult for me to understand at what point Victor "distorted" himself, when he lost this luster for science and at what point his thirst for knowledge transformed him into something that no longer seemed properly human. When, after all, did that scientist so promising meet his doom? Now, rereading and reflecting on this letter, on this outburst, I begin to realize that the deviation was perhaps present from the beginning. When considering the passage mentioned, in which he expresses the desire to discover the Philosopher's Stone and the elixir of long life, it becomes evident that he lacked basic foundations of scientific practice. There was an impulse to do for the sake of doing, sustained by an unshakable conviction that he was right. This ties in with something we discussed earlier: we learned that, to some extent, all knowledge needs to return to our own plane. We are so self-centered that knowledge needs to be appropriated, transformed, and somehow serve our interests as a species, not necessarily starting from a point that questions the impact of our actions.

It may seem easy to judge Victor precisely because his experiment sounds extreme: to create a complete and perfect human being. However, this distance may be illusory. To some extent, are we not, in our drive to heal or save humanity, trying to accomplish something similar, albeit on a smaller scale? The understanding that there is a subtle threshold that differentiates the understanding of phenomena, the construction of methods that aim to bring quality of life and the impulse to eliminate morphological imperfections; Doesn't the search to correct, improve and, ultimately, get closer to an ideal of perfection echo, in a way, the same movement? It is at this point that literature becomes truly formative: by confronting us with these questions, it expands our capacity for critical reflection and invites us to rethink the meaning and limits of scientific practice. The Arts attend to emotions and make room for the reinvention of the human, whenever it is uselessly necessary...

The Humanities have long claimed space in health education. And this claim seems to compete with the truth of the demands. But perhaps it is necessary to rethink the ways of

approaching. I speak here not as a researcher in the Human Sciences, but as a biomedical doctor. As someone who crossed, even partially, this outgoing movement, and who could perceive, in practice, the impact of this crossing. Literature is not a magic solution, nor is it a single path. But it opens up a field where we so often close ourselves, opening is, in itself, a radical gesture. It is necessary to understand this process not as the creation of a "hierarchy" where only one of the "sides" presents definitive answers, but to understand that the combination of knowledge opens up the possibility of admiring the subjectivity of the concept of "doing health" from different perspectives.

3 BETWEEN RUPTURES AND CONTINUITIES: REVISITING MODERN REASON

When reflecting on this movement that presents itself as a radical way out towards the humanities, my starting point was precisely philosophy, in dialogue with literature. At this initial moment, a decisive question arose: is this gesture of rupture, which today seems so innovative, in fact something new? Or are we just going back to previous ways of producing knowledge? This question displaces the problem and invites us to look historically at the ways in which science and knowledge have been constructed over time. It is in this sense that I turn to the work *The History of Western Civilization, as a way of situating this debate. Before directly addressing Descartes' so-called error, it seems essential to understand the logic that guided his thinking and the reverberations that still structure our way of understanding the world today.*

René Descartes has consolidated himself as one of the main exponents of modern rationalism, although he was not the first to value reason as a way of access to knowledge, his proposal is distinguished by a systematic refusal of authority and tradition as criteria of truth; in opposition to the medieval Scholastics, Descartes proposed a method based on doubt and deductive construction, inspired by mathematics. Their procedure consisted in starting from principles considered self-evident and, from them, deducing particular conclusions. In this context, the famous principle "I think, therefore I am" emerges, conceived as an undoubted foundation of knowledge. From this base, Descartes believed it was possible to build a coherent and universal system, capable of demonstrating, for example, the existence of God and the distinction between mind and body. In addition to rationalism, his contribution also involves the formulation of a mechanistic view of the universe. From this perspective, all natural phenomena could be explained in terms of matter in motion, governed by universal laws; The world, organic and inorganic, came to be understood as a great mechanism. Even so, Descartes maintained a fundamental dualism: while the body belongs to the material order, thought constitutes a distinct substance, not reducible to matter.

After Descartes, different thinkers dialogued with his ideas, whether they deepened them or criticized them. This path leads us to the Enlightenment, which represents a decisive moment in the history of Western thought. Emerging in England at the end of the seventeenth century and widely spread throughout Europe, especially in France throughout the eighteenth century, the Enlightenment consolidated the centrality of reason as a criterion of truth.

> Reason is the only infallible guide to wisdom. All knowledge has its roots in sensory perception, but the impressions of our senses are nothing more than the raw material of truth, which needs to be purified in the crucible of reason before we can use it to explain the world or to indicate the way to a better life (Burns, E., 1968, p.549).

At this point, I make a brief, more personal inflection. The writing of this text did not follow a linear path, but was configured as a movement of comings and goings. I started from the proposed reflections, I incorporated new readings and theoretical references. Although it is a letter, and not a scientific article, it has become necessary to build a consistent argumentative ballast. In this process, the reading of works caused important shifts in my understanding. The experience was, in many ways, similar to a crossing: a journey that required revisiting knowledge that was apparently already consolidated. When I returned to the Enlightenment, for example, I had the initial feeling of being in front of something new, when, in reality, it was a content that had already been studied. This perception highlighted not only gaps in my training, but also the effects of an educational model that often hierarchizes knowledge. During my school career, the disciplines of the exact sciences received greater attention, in part because of the difficulties they imposed on me, while the humanities were, albeit involuntarily, relegated to the background. Therefore, to take up these ideas relegated to the scope of this less brief epistolary reflection is like collecting all the instruments of navigation and gathering them in front of me, before embarking on deep seas...

Resuming the thread of argument, it is important to highlight that the Enlightenment was deeply influenced by both rationalism and the scientific advances of the time. In this context, Isaac Newton played a central role in formulating laws capable of mathematically describing the workings of nature. His theory of universal gravitation exemplifies the idea that the universe is governed by invariable principles that can be precisely formalized. Alongside Newton, John Locke contributed to the valorization of experience as a source of knowledge, articulating it with rational activity. The result of this set of transformations was the consolidation of a worldview in which natural phenomena came to be understood as governed by universal laws, moving away from teleological interpretations typical of medieval thought. The universe is no longer

conceived as oriented by intrinsic purposes and is now described as a system regulated by causal relations, comparable to the precise functioning of a machine.

4 MIND AND BRAIN IN SCIENCE: BETWEEN REDUCTIONISM AND LOSS OF MEANING

And it is at this point that we finally reach the core of this reflection. Throughout this letter, I insistently return to the tension between fragmentation and integration in the production of scientific knowledge, as well as mechanistic knowledge. And not by chance: those who work in the area know how challenging it is to sustain, in practice, a truly interdisciplinary movement. Integrating knowledge is not only a theoretical guideline, but a concrete, everyday difficulty. In recent years, this challenge has been explicitly recognized in the Brazilian context. Law No. 13,005/2014 inaugurates an important movement by proposing greater articulation between university and society, later consolidated by guidelines that, as of December 18, 2018, with Resolution CNE/CES No. 7, sought to make this integration effective. Having joined the university in 2020, I followed the beginning of this process and witnessed up close the effort of professors to build new methodologies that would take knowledge beyond institutional walls. This movement, already complex in itself, was further strained by the context of the pandemic, which made its implementation especially challenging. Given this, an inevitable question began to impose itself: have we always done science in this way? Is this fragmentation an intrinsic and immutable characteristic of scientific knowledge? A reading of *Descartes' Error* by scientist Antonio Damasio suggests not.

It is at this moment that the figure of Descartes comes in, not only as an author, but as a symbol of a set of ideas that profoundly shaped Western thought. His dualistic proposal, which separates mind and body into distinct substances, had a lasting impact on both the sciences and the humanities. The famous formulation "I think, therefore I am", presented in *Discourse on Method* (1937), crystallizes this separation by suggesting that thought constitutes the foundation of existence. However, the criticism proposed by Antônio Damásio points to a central problem: this inversion ignores the fact that, from the biological and evolutionary point of view, existence precedes thought. Before thinking, organisms exist; Before complex consciousness, there are more elementary forms of life regulation. In this sense, thought is not the origin, but the consequence of a living, structured and functional organism. The so-called Descartes error, therefore, is not reduced to specific misunderstandings about the functioning of the body, many of which have already been overcome, but concerns a deeper and more persistent separation: the dissociation between mind and body. This division supports the idea that processes such as reasoning, moral judgment, or emotional experience could be understood independently of

the biological organism that makes them possible. The consequences of this perspective are wide-ranging. In medicine, for example, she has contributed to an approach that often dissociates body and mind, treating biological and psychological aspects as separate domains. In the cognitive sciences, it manifests itself in the idea that the mind could be understood as a software, relatively independent of the brain hardware, a metaphor that, although useful in certain contexts, reveals limitations when confronted with the complexity of the living organism. Damasio does not deny the centrality of the brain in mental processes, on the contrary, he recognizes that thought emerges from brain activity. However, he argues that this formulation is insufficient if it disregards the body and the environment in which this brain is inserted. The organism is not only a support, but an active condition of the mind. Body, brain, and world form an integrated and dynamic system.

In this sense, the criticism is directed not only at classical dualism, but also at its more subtle contemporary versions, which maintain, albeit implicitly, the separation between mind and body. The problem is not in recognizing analytical distinctions, but in absolutizing them to the point of losing sight of the articulation between the parts. Perhaps the current movement of science can be understood precisely as an attempt to revise this legacy. If, at a certain moment, it was necessary to separate in order to know, today we are faced with the opposite challenge: to integrate in order to understand, and this integration is still under construction, there is no finished model, nor definitive answers. What we can say, with some certainty, is that strict separation has not been enough and recognizing this does not mean abandoning the path taken, but understanding it as part of a broader process. Fragmentation was, and remains, a fundamental strategy, but it is not enough on its own. Thus, what I propose is not to solve the mind-brain dilemma, nor to exhaust its implications. It is, rather, to situate it historically and use it as a starting point for a broader reflection: that understanding the human being inevitably requires the effort to articulate what, for a long time, we have learned to separate.

5 REFLECTING AND DISCERNING: WHAT IS PROPER TO THE HUMAN AND FOUNDS SCIENCE

There is something curious and, why not, disturbing at the moment when we realize that terms such as reflection and discernment are no longer immediately associated with scientific practice, especially in the health sciences. I remember a conversation with a colleague, to whom I explained the procedures of statistical analysis of my work, developed from the methodology of thematic oral history. As I described the process, he interrupted me, surprised: Wow, I thought it was just philosophizing. The only thing that did not go unnoticed.

Since when did reflecting become synonymous with something smaller? At what point was reflection reduced to an expendable, almost ornamental exercise in the face of what is conventionally called the science of truth? In the biomedical sciences, we are used to valuing what is statistically significant. We transform biological data into numbers, submit them to statistical tests and, from them, build interpretations. There are questions that only the number answers, but there are others that only reveal themselves to those who are capable of reflecting. And reflecting, here, is not an automatic gesture. It requires method, yes, but it also requires sensitivity, listening and the ability to sustain the complexity of what the other presents to us. Above all, it requires the courage to connect what, at first sight, seems irreconcilable: the biological datum and the lived experience. And how could this seem simple?

It is at this moment that I turn once again to literature, this space where the human experience reveals itself in its deepest density. In Grande Sertão: Veredas, João Guimarães Rosa presents us with a fundamental concern: the search for a path that, although it exists, does not show itself in an evident way. Each person, the work suggests, carries with them a kind of script of existence, a possible direction, even if hidden. And to live would be, in some way, to try to find it. If we take this image as a starting point, it becomes difficult to sustain a health science that does not understand, at least, what a person is.

How can we talk about health without considering the complexity of those who live there?

Before any protocol, before any method, there is a previous and unavoidable question: what constitutes a human being? Without this understanding, any attempt to produce knowledge about health runs the risk of becoming incomplete, if not mistaken. In this sense, achieving what we could call a fair measure requires breaking with the mediocrity of automatism, which arises as a result of an education based on following technological trends in an impractical way.

> *In recent decades, the increase in the production and incorporation of new technologies has been associated with improved prevention, diagnosis, and treatment of diseases, which has had an impact on an increase in quality of life and a decrease in mortality in general. However, this situation has generated a considerable increase in costs in the health sector [...] Among the possible explanations for this phenomenon, the fact that new health technologies are more expensive and have a cumulative aspect is justified, unlike other sectors where the inclusion of a new technology tends to replace previous ones (AMORIM, F., 2011, p. 344)*

Here it is not a matter of denying that these technological advances do not bring any benefit, but of understanding that we are very focused on the uncontrolled production of new techniques/technologies, but that we often do not think about their real application in the clinical

or even scientific context, demonstrating a clear absence of a deep reflection on doing in science. It is for this reason that this context requires abandoning the security of ready-made recipes and opening up to experience, not as an uncontrolled error, but as a legitimate space for learning. Science does need technical rigor, method, theoretical foundation. Without this, it dissolves into opinion, but there is something equally indispensable: the awareness that the knowledge produced is only a part of a greater whole. When we recognize that biology does not offer all the answers, we make room to reintegrate into science what should never have been excluded: experience. And, in a way, we already do this, albeit silently. When a protocol indicates the use of a certain amount of a reagent, but laboratory practice teaches us that it is possible to adapt it, we are, in fact, operating from experience. The question, then, is not to introduce experience into science, it is already there. The point is to recognize that it must also inhabit the way we think, interpret and question our objects of study.

In this path, reflection arises as a response to a kind of revelation: that a health science restricted to the biological is not enough to produce care, neither ethics nor humanity. And, once crossed by this perception, we are summoned to another movement: that of discernment. To discern is to judge, distinguish, evaluate; it is to recognize the origin and quality of what crosses us, whether data, theories or discourses. In times marked by the overvaluation of a narrow rationalism and, paradoxically, by the growing inability to think critically, this skill becomes even more urgent. We live surrounded by ready-made speeches, simplified interpretations, and an avalanche of information that requires, more than ever, the ability to separate what is consistent from what is just convincing. In the scientific field, this becomes particularly delicate; The authority of scientific discourse is often used to legitimize superficial, sensationalist or even mistaken statements. And so, little by little, we run the risk of becoming what we criticize the most: subjects who accept without question.

The excessive protocolization of science is one of the symptoms of this process. How can a health scientist claim to understand the human being and reduce his definition to the biological dimension? How can you accept a protocol without questioning its limitations? There is an evident contradiction here: while we denounce the uncritical adherence to the so-called fake news, we reproduce, to a certain extent, a similar logic when we stop questioning what is presented to us under the seal of science. The difference is that, in this case, the risk is even greater, because it is accompanied by the legitimacy of scientific discourse. Perhaps the central point is this: it is not possible to understand the complexity of a human being from a single axis. No protocol, no matter how sophisticated, is capable of encompassing the totality of human experience, and recognizing this does not weaken science, on the contrary, it strengthens it.

Because it is precisely in this space of tension, between what we know and what still eludes us, that science becomes, in fact, human.

And here, reader, I need to tell you: on this point, perhaps you disagree with me. Perhaps he has come this far moved by the desire to refute each of these ideas, to organize, in his own angle, an answer. Or, perhaps, some of what was said had, however uncomfortably, found resonance in you. Be that as it may, there is something that cannot be ignored. It's easier to stay. It is easier to produce work that fits the expected pattern. It is easier to sustain a line of research that is already legitimate, to obtain funding, to be recognized by peers, to have one's own work promptly classified as useful. There is comfort in this place and there is also reward, but that is precisely where the risk lies.

I evoke here Fernando Pessoa, in his poem The Fifth Empire: Sad for those who live at home, content with their home. Because doing science, in its deepest dimension, requires courage. To get out of the comfort zone, to get out of ready-made answers, to get out of structures that, although safe, also limit. No line of research can be sustained intact forever. One can even keep the same object of investigation, but the way of approaching it will inevitably need to be transformed. Science that does not move, stagnates. You may disagree with me when I say that the humanities are a path to a more structured science. This disagreement is legitimate and, in a way, necessary. But there is one point that remains unavoidable: it is not possible to do science without breaking, to some extent, with self-indulgence. Because it is in displacement, and only in displacement, that something truly new can emerge.

6 THE SCIENTIST'S ODYSSEY: BETWEEN LITERATURE AND SCIENTIFIC PRACTICE

It is possible that, at this point, reader, you have the impression that, by criticizing the structures of science as they are, I not only expose their weaknesses, but also make even more arduous a trajectory that is already proving to be exhausting in itself. And in this regard, I must be honest with you: yes, it is difficult. I say not from a distant place, but from the interior of the crossing itself. I walk through it now, as do I dare suppose many of those who read me. Entering academic life, aspiring to a place in it, building oneself as a professor or researcher: all this already carries a considerable weight in itself. And it is no secret how much this path has sickened those who follow it. For us, who still seek to enter this space, the landscape is sometimes even more arid. To the competition and suffering are added the urgencies of the concrete world: financial limitations, external pressures, the life that insists on happening beyond the walls of academia. None of this can be ignored.

I do not write, however, to condemn or prescribe immediate changes, as if it were enough to name the problems for them to be solved. I only hope that I have made it clear that any transformation, whether in the way of producing science or in the way of inhabiting it, is far from simple. I speak of what I know: of what I live. There is, indeed, a devaluation of science, and it is felt even more acutely when one chooses to walk through the Humanities. It was, perhaps, for this reason that I found a certain encouragement in literature.

When I pored over The Odyssey, especially in more attentive readings, I realized something that goes beyond the practical demands of life, even if these are unavoidable. After all, it is necessary to live: to pay rent, to feed oneself, to support oneself. Science, however lofty, does not exempt us from these needs. And yet, between one page and another, a concern emerged: was I, like so many others, not looking for a safer, more direct, more predictable path than academic life itself allows? Wouldn't I want a trajectory that offered guarantees? But the truth, little by little, imposed itself: there is no path that promises this. I remember a passage that crossed me:

> *Would Ulysses have been the Ulysses of the Odyssey if his return to Ithaca had occurred like that of the other heroes of the Iliad, without so many setbacks, adventures and sufferings? If that were the case, his story would not deserve a poem of his own. (Gallian, D., p.168)*

I do not bring this passage to glorify suffering, but it has led me to an uncomfortable and, at the same time, profoundly human understanding: pain, error, deviation, everything we have learned to avoid, also constitutes us. We live under the ideal of an existence without pain, without loss, without death. Science itself, in many of its efforts, is guided by this horizon: to cure, to prolong, to preserve. And this is undoubtedly necessary. But there is a silent paradox, because in trying to eliminate everything that hurts us, wouldn't we also be trying to erase part of what makes us human? As someone trained in biomedical sciences, I cannot ignore this desire to overcome limits, it also inhabits me. Still, I recognize: there are dimensions of experience that will not be eradicated. The biology of the human is not dissociated from pain; on the contrary, he walks with it. And, at this point, I allow myself a reflection that I do not extract from books, but from my own experience: Ulysses did not face his obstacles in search of glory. He did not sail rough seas wondering if his name would echo through the centuries. His desire was another, simple, intimate one: to return home, to meet his wife again, to see his son, to recover his place in the world. Perhaps therein lies a question that often escapes us: what, after all, are we fighting for?

In the academic environment, it is easy to confuse purpose with recognition. Publishing in a certain journal, entering a certain university, winning scholarships and titles, all this becomes a metric of value. But in the middle of this race, there is a risk of losing something essential: genuine curiosity, the true link with what is being investigated. What moves you? Was it prestige or interest that brought you here? Was it the opportunity or the discovery of meaning? There is a subtle but decisive difference between those who only transit through a theme and those who inhabit it. The latter speak with propriety because, at some point, they made that object their own. They did not arrive by chance; they arrived by choice or, at least, stayed by it. When the focus is fixed exclusively on the goal, on the path already traced, on what must be done, something is lost. Individuality is diluted, curiosity is weakened. One starts to produce not by desire, but by adequacy. And, yes, it's true: that's often exactly what the system requires.

I remember an advisor who, with remarkable lucidity, once said to me: it is possible to disagree with the system, but to transform it, it is first necessary to be inside it. Perhaps this is the task: to understand the space we occupy, to recognize its limitations and, even so, to find gaps, small but real, to sustain what moves us. No path is without pain. No choice completely spares us from suffering. What remains for us, then, is to choose what, despite everything, brings us closer to some meaning. If Ulysses had given up in the first adversity, his story would have ended there: silent, without memory. Each of us needs to decide, along the way, how far we are willing to go and why. If the choice is to remain, and it will not always be, let it be at least a conscious permanence. And, along the way, I allow myself a simple piece of advice: read.

Literature keeps what, little by little, we have forgotten. Works like Frankenstein or the *Odyssey* don't just narrate journeys, they return us to the axis, reminding us of what we are made of. Because if we forget that we are human, there will be no science, no knowledge, and no place we can truly inhabit. And so I close these lines: not as a conclusion, but as a record. A small fragment of my own odyssey.

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