

Excerpt from I. Aranyosi, *The Peripheral Mind* (OUP 2013).
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Margins of Me: a Personal Story

A line from the hit song of the 1960s, “Big Yellow Taxi,” by Joni Mitchell, reads: “Don’t it always seem to go, that you don’t know what you’ve got ‘till it’s gone.” This means, of course, that you come to appreciate something you currently have only once you have lost it. This claim presupposes that, whatever you had, you were aware that you had it, but failed to value it. Yet some losses entail an even greater recognition: when you first notice upon losing something, *that you had something as such*. In such cases it is not merely a question of realizing a thing’s value; even the fact of having it in your possession eludes you until you have it no longer. In other words, it is your failure to notice the thing while you have it that first enables you to “appreciate” it at its true value—once it is gone.

My example of such a case is that of a healthy peripheral nervous system (PNS). The PNS is the part of the nervous system of vertebrates that lies outside the brain and the spinal cord, and has the function of transmitting nerve impulses from the receptors located all over and inside the body to the central nervous system (CNS) consisting of the spinal cord and the brain, and from the CNS to the effectors, namely the skeletal and visceral muscles to be found in the body. The PNS is the primary interface between us and our environment. In a healthy PNS, its sensory part makes sure that we are sensitive to a wide range of stimuli via the receptor nerve cells found in the skin, the muscles, the mucosa of the nose, the retina of the eye,¹ and so on. Its motor part makes sure that we respond in the

¹The retina, as well as the optic nerve, are officially classified in contemporary neuroscience as part of the CNS, based on their developmental origin as anatomical

right way to these stimuli, for instance, that we avoid noxious, pain-causing stimuli.

First, let me distinguish the case of the PNS from another type of case, namely, when in order for a good that you possess to perform optimally (i.e., as designed and at its peak), you are supposed not to pay attention to it, not to notice its working while it performs, lest you negatively interfere with its otherwise optimal performance. Most dynamic activities involving our bodies fit this description. When you play tennis, football, basketball, and so on, it is not at all advisable that you at any time start paying attention, say, visually, to how your feet or arms are moving, on pain of simply failing to optimally perform, if at all, the tasks involved in these activities. It is also plainly counterintuitive for us to start focusing on ourselves rather than on where the ball is, what speed it has, where the other players are located, how fast they move, and in which direction: the whole activity is not about contemplating what we ourselves are doing. These cases of involvement with the world, or phenomenological immersion into the action have been noted before, for instance by Martin Heidegger,² or a psychologist like Mihály Csíkszentmihályi,³ and it is part and parcel of the emerging, phenomenological movement in the foundations of cognitive science, whose claims are understood within the tradition whose main figures are Edmund Husserl, Heidegger, and Maurice Merleau-Ponty.

However, while immersion or direct engagement with the world has as its conceptual counterpart the idea of a loss of oneself, or at least a weakened sense of oneself qua a self in relation to a world that is still external, the case of how the PNS connects the agent to the world is different in that it involves not *losing* oneself to the

units. However, from a neuro-functional point of view, it is more natural to consider them as part of the PNS. Hence, I use them as examples of PNS activity throughout, as from this work's perspective the neuro-functional criterion is more relevant than the anatomico-developmental.

²Heidegger, in several places throughout his *Being and Time*, talks about this involvedness via the idea of certain things being *ready-at-hand*, that is, possessing properties that depend on the activities in which these objects are properly used. It is essential to what these things are that they are used rather than contemplated.

³Hungarian psychologist Csíkszentmihályi (1990) proposed the notion of *flow* to explain what is going on during creative activities of people with high performance levels, like artists, musicians, academics, writers, although the notion has applicability for human activities as such. Flow is a state of complete focus, or complete absorption with the activity at hand and the situation. Psychological components of flow include a loss of one's self-consciousness during the performance, a distorted subjective sense of time, clear goals, focus, lack of awareness of bodily needs, and a balance between the level of the challenge presented by the activity and the level of the ability of the performer.

world, but rather having an *intimate grip* on the world. In what follows I will appeal to my own experience of serious loss of some PNS function, and, of course, as any first-person account, it won't always be very precise, but I hope I can convey some points that are relevant to the guiding idea of this book.

On February 15, 2005, just four days after my public Ph.D. thesis defense, I was radiologically diagnosed with a very large neoplasm, a tumor occupying the middle of my chest, which later, after biopsy, turned out to be a case of Hodgkin's Lymphoma. Not long after, I started the treatment, which consisted of chemotherapy for about four months, followed by radiotherapy for three weeks. As part of the chemotherapy, based on the standard ABVD regimen, I was supposed to be administered Vinblastine, a *vinca* alkaloid obtained from the *Madagascar periwinkle*, which is a mitotic inhibitor (stops cell division). As it happened, because of a lack of Vinblastine at the oncology institute where I started my chemo, I was administered a chemical analogue, Vincristine. Both these *vinca* alkaloids are neurotoxic, but Vincristine is more frequently so and has more serious toxic effects on the PNS. The toxicity is dose-dependent, so if signs of serious nerve damage appear, administration of the drug is immediately discontinued. In milder cases it only interferes with motor functions related to refined motion, like undoing a shirt's button. In more severe cases it leads to peripheral neuropathy (paresthesias, loss of deep tendon reflexes), involving severe disturbance of the motor function. It can also become life-threatening when it affects the autonomic part of the PNS, leading sometimes to coma and respiratory arrest. It is also known that there are people with some pre-existing but latent nervous condition, who are more sensitive to Vincristine, and in whose case the drug should not be administered whatsoever, given its disruptive effects. Hence, the medical community nowadays recommends genetic testing of patients who are about to receive Vincristine, in order to avoid massive nerve damage (Perry and McKinney 2008: 631).

In my case it turned out that administering Vincristine was not a good idea. A few days after the second dose, and about eighteen days after the first one, I was leaving my apartment to take a walk downtown. I was walking downstairs, had already descended two floors, and when I had two or three more steps on the entrance stairs to reach the ground level I tumbled down. It was so quick and out of the blue that I couldn't explain why and how it happened. I looked for some object on the stairs that I could have tripped over, but there was nothing. A bit embarrassed, stood up and started walking. There was nothing to indicate that the problem was intrinsic to me. After

a few minutes of a pleasant walk, I sat down at a computer in an Internet café to check my email, as my home connection wasn't working. I spent about half an hour sitting, browsing; I closed the browser, and I was about to get up and leave the place. I realized that I was not able to stand on my feet. I could raise my body a few centimeters, by pushing with my feet against the floor, but an extreme weakness invariably made me settle back on the seat. I immediately realized it had to do with Vincristine. During the month before my treatment started I had read a lot of medical literature related to my condition, including articles on the neurotoxic effects of *vinca* alkaloids, so I knew what to expect, and that sometimes serious motor effects can ensue. What I didn't expect was that the onset could be so sudden. Somehow I always assumed that if these neurological effects appeared, they would appear *gradually*, so one would be prepared in case more serious disturbance should follow. As the mild effects are numbness of the fingers and toes, as well as difficulties in executing precise, fine-grained motions, I assumed that that was how it was going to start, if I were to have such neurotoxicity at all. Yet, that wasn't the case.

After a few failed attempts to stand up quickly, I realized I had to do it slowly and by relying more on my arms. Finally, I could stand and walk slowly back home, which was about 200 meters from the café. The situation got worse and worse for the next six weeks, was stationary for a few weeks, and then began to improve. Meanwhile, of course, the administration of Vincristine was completely discontinued. In the first six weeks the denervation proceeded gradually from the toes to the ankles and middle of the legs, and also from the tip of my fingers to the middle of my forearms. So I ended up with a symmetrical, so-called glove-stocking type distribution of motor nerve damage. Sensory nerve fibers were unaffected. It took about two years to almost fully recover. Fortunately, the tumor also disappeared after about seven months, so I got cured of the main illness.

During this long time between the onset of the neuropathy and the almost full recovery, beyond the obvious malaise one is bound to go through, I had a chance to think about philosophical approaches to consciousness, sensory experience, and the self. The Ph.D. thesis I had completed and defended right before my tumor was identified was about the metaphysical mind-body problem, the issue of how a physicalist—someone who believes that everything that exists is physical and that all properties are either physical, or entailed by the totality of physical properties—is supposed to deal with phenomenal

properties, with *what it is like to have* sensory experience. Actually, the presence of my tumor was established as a result of a standard X-ray screening I had to undergo in order to obtain an Australian long-term visa, before joining the Centre for Consciousness at the Australian National University, headed by David Chalmers, where I planned to continue working on consciousness as a postdoctoral fellow.

I knew of philosophers of mind who think that first-person data, phenomenological reflection based on how one subjectively feels or judges certain facts, are as important as third-person, objective data, when it comes to addressing philosophical problems about consciousness. I also knew of philosophers who started thinking about some philosophical problems based on some first-person experience. One example was my teacher, Howard Robinson, who once mentioned in class that he was prompted to write a book about perception by some puzzles that he thought were interesting, which arose in the context of his everyday experiences: for instance, the blurry image he used to get when putting on or removing eyeglasses, or the distortion of the visual field when he was gently pushing his eyeball from a side, or when one has an afterimage following an intense light stimulation of the eye. I used to think there was something unserious, even frivolous about such motivations to do philosophy, and, in general, that the idea of basing one's philosophy on subjective data is humbug, or at least dubious; and yet, and yet—I was now drawn to think about philosophical issues based on my condition.

One thing I realized during the period of severe peripheral neuropathy was the *déformation professionnelle* that we, philosophers of mind, have acquired by focusing so much on the brain and on the cranium when thinking about the self. It is in my opinion an extension of the Cartesian over-intellectualization of the mind. We could call it "cranialization." For instance, the literature on perception, when it comes to paradigmatic examples of perceptual phenomena, almost always focuses or starts from the visual case. Vision is somehow assumed to give the best picture of perceptual representation. And vision is of course something that involves the receptors in the eyes, which are in the cranium. There is an implicit bias here in favor of the perceiving self as paradigmatically residing, somehow, in the skull. The Cartesian tradition focuses on higher-order mental phenomena, like self-consciousness and abstract thinking. Through my experience I became aware of how much there is to the self inhabiting the extremities of the body, the limbs. My paradigmatic phenomenal self-perception was dependent on the sense of touch,

on changes in gait, on kinesthesia, on the presence of the self at the extremities. The theoretical periphery has become a phenomenological center. It is important to stress that it was not merely that the body is present to the mind as a *body-image*—so the mind essentially perceives its attached body, but still the mind is thought of as confined to the brain—as some contemporary neuroscientists seem to think when in their more philosophical moments; here is, for instance Antonio Damasio (2010: 120):

Messages from the skeletal muscles use different and fast-conducting kinds of nerve fibers—A α and A γ fibers—as well as different stations of the central nervous system all the way into the higher levels of the brain. The upshot of all this signaling is a multidimensional *picture of the body* in the brain *and, thus, in the mind.* (emphasis added)

As it happens, Damasio's latest (as I'm writing) book is replete with references to the brain as the seat of the mind, and, though bodily phenomena are taken seriously, they are supposed to fill in the role of *content* for what the brain/mind represents; here is another quote (Damasio 2010: 110):

Because, as we have seen, brain maps are the substrate of mental images, map-making brains have the power of literally introducing the body as *content* into the mind process. Thanks to the brain, the body becomes a natural topic of the mind. (emphasis in original)

What I am talking about is very different. It is not the body as present to the mind in the representational sense, but the mind as such extending all over the body, and more exactly to all areas of the body that get innervated. This idea is better captured by a quote from Edward Rowland Sill, a lesser-known nineteenth-century American poet and essayist:

The spinal cord runs along the back, with all its ganglia; the weight of the brain is well behind; yet *we* are not there. In other words, the curious thing is that we feel ourselves to be, not in the region where impressions are received and answered in the brain and spinal cord, but where they first meet the nerve-extremities. We seem to inhabit not the citadel, but the outer walls. At the point of peripheral expansion of the nerves of sense, where the outer forces begin to be apprehended by us as inner,—“in front,” where the fingers feel, and the nose smells, and the eyes see—there, if anywhere, we feel ourselves to be. ([1900] 2001: 255) (emphasis in original)

And in the same vein, Maurice Merleau-Ponty observes that “the consciousness of the body invades the body, the soul spreads over

all its parts, and behavior overflows its central sector" ([1945] 2002: 87).

These quotes present a quite different picture of the mind from either the Cartesian (or "textbook" Cartesian) soul in the body as a pilot in the cabin, or the contemporary neuroscientific picture of the mind as a brain possessing a body-image. The picture is rather of the mind as distributed in, or *infusing*, the body, thanks to the PNS. One could think of this metaphorically when talking about "my mind in my stomach when I am hungry," or "my mind in my finger when I feel pain," meaning only my minding my hunger and my pain, respectively, but I mean it literally: there is no reason to think that the stomach-mind (the part of the mind that is phenomenally located there) or the finger-mind is less of a mind than the brain-mind. In fact, the brain appears phenomenally mindless, doesn't it? Our modern and typically Western *everyday* way of thinking in terms of the brain as the seat of the mind is, in my view, clearly socially constructed in the sense of Berger and Luckmann (1966).

The first revelation I had about this was when, after receiving my chemotherapeutic infusion, I was sitting in the front seat and was preparing to get out of the car. I was supposed to lift my legs, one after the other, in order to step out. As my muscle weakness was serious, I had to grab the edge of my trousers with my hand, and help my leg muscles do the job; my hands were still working fine at that time. My impression was that the lower parts of my legs had become alien to me. It was the same impression as when you have a heavy object attached to your ankle which makes your muscles' flexion more difficult, except that now the heavy outer object was my own foot. And to that extent it ceased to proprioceptively feel like my own foot. My foot, or what used to be felt as my own foot before, has now become part of the *external world*; a piece of denervated, hence, alien flesh to be dragged around. Of course, visually the foot was mine; I could obviously see it and think of it as attached to the rest of my body, but when it comes to feeling your foot as yours, the visual ownership is fake ownership. The fact that visually and objectively the part-whole relation holding between your feet and yourself, its mereology, is not (too [much]) disrupted does not preclude whatsoever the clear disruption of its phenomenological mereology.

Incidentally, just a few months before, I had read a piece in a newspaper or magazine, in which the author was analyzing the phenomenon of online communities, in terms of whether such 'cyber-tribes' encourage social cohesion, or rather contribute to isolation and polarization within the larger social context. One of his

examples of a weird and pernicious online community, which could not exist if internet had not been invented, was an online group whose membership is based on a shared psychiatric disorder, *apotemnophilia*. Those suffering from this disorder have a desire to have one or more of their limbs amputated, based on their sexual fantasies. In some of the more serious such cases, when the desire is very strong, the subjects suffer from a condition known as *Body Integrity Identity Disorder* (BIID), which makes them feel the relevant, otherwise completely healthy limb to be entirely alien to them, and seek the help of surgeons to perform an amputation. There are shocking case studies of this rare and fascinating disease, which indicate that some subjects show up at emergency rooms after self-inflicted injuries to the limb, in order to obtain emergency medical amputation. It is worth quoting from such a case study:

One week later, the patient presented to the emergency department with bilateral lower-extremity pain, weakness, and swelling, along with 39.6°C fever and tachycardia. A repeat physical examination demonstrated 0/5 strength with dorsiflexion and plantar flexion of the feet bilaterally, along with bilateral, symmetrical erythema and edema of the lower extremities. Minor excoriations were noted on the patient's ankles, but no noticeable lacerations, ecchymoses, or puncture wounds were found. The patient was diagnosed with bilateral lower-extremity cellulitis as a complication of GBS (Guillain-Barré syndrome), and he was admitted to the neurology service for administration of intravenous antibiotics. . . .

At the surgeon's request to take the patient to the operating room, the patient requested bilateral below-the-knee amputations (BKAs) of his lower extremities. An orthopedic surgeon was consulted, and it was determined that amputation was not indicated, so the patient agreed to undergo bilateral incision and drainage of his lower extremities.

Additional history was obtained from the patient's spouse, and she revealed that the patient's distal phalanges of the feet were missing because he had performed self-amputation with a tourniquet in 1999. The patient's spouse further confessed that the patient had had a past fascination with amputations, and she had previously discovered him placing tourniquets around his lower extremities at various times. It was concluded that his bilateral neuropathy and cellulitis of the lower extremities were due to self-induced ischemia with tourniquets. The patient was diagnosed with apotemnophilia and transferred to the psychiatric service for further evaluation and treatment. (Bensler and Paauw 2003: 674-75)

I will talk more about apotemnophilia and BIID in the last chapter of this book, devoted to some topics in neuroethics, and about the

notion of embodiment in general in chapters 6, 7, and 8. The reason I mentioned such cases now is to point out that when first reading about them I found it hard to empathize with these patients, but now I had a different perspective, which, except for the pathological components, made me realize to some extent what it must be like to feel your limbs to be foreign.

In my case, of course, the prevailing sentiment was that of the loss of something whose absence made me now realize how important it is when present—just like in the Joni Mitchell song this introductory essay started with. That the opposite must be true of a BIID sufferer is nicely brought out by an episode of the BBC TV series *Casualty* in which a woman loses her leg; it gets destroyed by a train. Her behavior and attitude are bizarre, as she were unfazed by what has happened—just *unlike* in the Joni Mitchell song. She is later diagnosed with BIID.

I had a similar experience with my hands. The onset of the neuropathy at that level occurred a few weeks after the one at the level of the feet. Within a few days my fingers got bent, my hand assumed an inward bending, with the palms turned toward the forearm, and an extreme muscle weakness ensued, which made me unable to grasp even a spoon. Again, my hands felt like a foreign object attached to my “real hand,” that is to whatever was left in terms of innervation that could still serve more or less as an ersatz hand when it comes to hand-specific motion. I was soon to adapt to the situation by involuntarily learning how to execute hand-involving motor tasks based partly on visual information and partly on the proprioception of the whole arm. For instance, pushing the start button of the TV set, or of the computer, or turning the light on/off by pushing a button, were actions that I would soon learn to execute with more or less precision. The recipe was first to visually fixate on where the button is, and then to throw the whole hand, with its bent and weary fingers, toward it through the air, by using the large muscles of the arm, in such a way that one of the fingers would land exactly on the button and push it. The push itself, once the finger has successfully landed, was based on the action of the large muscles of the arm and the pure mechanics of solidity and the limits that the joints have in bending, and almost complete lack of any muscle contribution from the hand.

I learnt similar tricks for the feet, although that was painful. In the early days I wasn't yet used to the new conduction patterns and speeds in the motor fibers of my legs, so I fell over a few times in the house, injuring myself, because I 'misunderstood' the time I need for

my legs to react to the decision of moving them. One such case was when someone rang the doorbell and I immediately wanted to proceed to the door, but my legs were slower than how my will expected them to react, so I fell and injured my knee and my ankle. During those times I underwent several sessions of (quite long and tiring, and somewhat painful) nerve conduction tests and EMG (electromyography) set up by my neurologist, who was writing a Ph.D. thesis on chemo-toxicity induced peripheral neuropathies. I learnt that my damage was axonal, that is, it was only the axons that got severed by the chemical attack, which otherwise left the cell bodies of the neurons intact; this gave me hope for the future recovery of the fibers. The nerve conduction tests showed a reduction of the nerve conduction speed in all the main motor nerve fibers in the legs; some were conducting at half speed, others even slower. There is a direct positive correlation between the extent of the damage (i.e., thickness of a fiber after injury) and its conduction speed. The test for sensory fibers showed that those were not affected. Heat, soft touch, and pain stimuli elicited the normal patterns of neural activity.

The reason I said earlier that the mind is neither the Cartesian, highly intellectualized, cranium-confined firm-and-frozen ego, nor the self-effaced, world-immersed, flowing, field-like non-thingy occurrence, is that even though I was feeling my limbs to be alien to myself, that did not mean that I felt them to be *disconnected*. Rather, they were intimately connected, yet, merely *connected* to me, and not phenomenologically proper parts of myself. The mind-world boundary seems to have moved from the skin/environment junction to the innervated/denervated junction within the body. So part of the body has become external to the mind, or 'de-minded'. It was only then that I started thinking about the mind as really present throughout the body rather than as merely containing a body-image or being informed by the body. The most obvious case that used to bring about this feeling was related to gait. Naturally, the nerve damage has distorted my gait; walking was very risky and insecure. More importantly, the new perspective on walking made me think of the mind-world connection in the normal case as of an intimate grip on the external environment, on whatever felt or presented itself as external to myself. That kind of intimate grip was now experienced between myself and my lower legs; they were connected tightly, so that they could be manipulated, moved in a rough manner, but they at the same time felt external to the mind or self. For instance, walking with damaged peripheral nerves provided the impression of no important differences between stepping on hard

concrete and stepping on a soft carpet. Stepping on almost any kind of surface felt pretty much the same: pushing against a soft and unsteady surface, with a lot of muscles all over the legs tiring themselves in a concerted and seemingly chaotic effort to compensate for balance. I was toddling on a ubiquitous ocean of cotton rags embroiled with a motley assortment of scattered and jagged terrain, jeering back at the struggling neural flotsam that was left in the legs to keep the whole body edifice in good balance.

This intimate grip on the world can be extended to other sense modalities. There is a peripheral presence of the mind in every part of the body that gets innervated, and these peripheral parts of the mind are no less central than the processing center, which is the brain. The fact that the brain is the processing center does not entail in any way that it must be a phenomenological center. On the contrary, I think that we have every reason to think of the peripheral mind as phenomenologically and objectively part and parcel of what we used to think of as the mind or the self. Doing so, as it will become apparent in the following chapters, will provide many new and elegant solutions to philosophical puzzles related to the notions of mind and body. The ears, the eyes, the soft visceral tissues, the skin, and so on are all minded. I noted earlier that the mind, according to the picture I try to advance here, is multiply located. What I mean by 'multiply located' is not the same as 'scattered'. It is not that the mind has parts that are co-located in the ordinary sense with parts of the body. What I mean is closer to the *sui generis* notion of recurrence that we find in the writings of metaphysicians who are committed to realism about universals. Universals, like redness, tallness, sweetness, and so on, are said to be multiply located or recurrent entities, in the sense that they are entirely present in all their instances regardless of the time and place these instances are to be found. So, for instance, the same redness is present at the same time in two spatially separated red objects. This notion of recurrence is puzzling in some ways because it does not allow universals to be located in the same ordinary physical way as particulars (objects and events) are. The relation of *being co-located with*, in the ordinary physical sense, is transitive—if *a* is co-located with both *b* and *c*, then *b* and *c* are themselves co-located—but the sense in which a universal is co-located with something does not satisfy transitivity: redness is co-located with a red apple and with a red bag, yet the apple and the bag are not co-located. The universal, by its nature, is co-located with objects that are not themselves co-located; it is entirely present in diverse places.

Now, of course, many philosophers are skeptical about the notion of a universal precisely because of such a weird way for universals to be located, which, these philosophers argue, should not even be called 'location'. But a weakness in one domain becomes a strength in another. It is well known how hard it is to think of our consciousness as located somewhere. For one, it is not thingy enough to be located in the same way as ordinary things, particulars, are; and yet, it is undeniable that while being conscious we experience consciousness as being present. Where? Well, no one, including philosophers or neuroscientists who insist that the self is the brain, really has a knock-down argument for one location or another. Yet others think that consciousness is rather characterized by non-locality, on a par with the notion of non-locality in quantum physics (e.g., Clarke 1995). A great psychologist, unfortunately largely forgotten in academia at least, Julian Jaynes, wrote that although we tend to immediately locate our mind or self when prompted to do so, and we usually point to our heads, somewhere behind the eyes, there is strictly speaking no reason whatsoever to do so:

[W]e are continually inventing these spaces in our own and other people's heads, knowing perfectly well that they don't exist anatomically; and the location of these 'spaces' is indeed quite arbitrary. The Aristotelian writings, for example, located consciousness or the abode of thought in and just above the heart, believing the brain to be a mere cooling organ since it was insensitive to touch or injury. And some readers will not have found this discussion valid since they locate their thinking selves somewhere in the upper chest. For most of us, however, the habit of locating consciousness in the head is so ingrained that it is difficult to think otherwise. But, actually, you could, as you remain where you are, just as well locate your consciousness around the corner in the next room against the wall near the floor, and do your thinking there as well as in your head. Not really just as well. For there are very good reasons why it is better to imagine your mind-space inside of you, reasons to do with volition and internal sensations, with the relationship of your body and your 'I'. (Jaynes [1976] 2000: 45-46)

Here is the same point made a hundred years earlier by Sill:

[T]here is one point concerning our felt location which I think we are all sure of. It is the one brought out so deliciously by the dear little girl in "Punch." "You ought to tie your own apron-strings, Mabel!" says one of those irresistible young women of Du Maurier's. "How can I, Aunty?" is the reply. "I'm in front, you know!" ([1900] 2001: 255)

Maybe, when it comes to consciousness, we should not think of location in the ordinary sense in which particulars are located, but in the sense in which universals are supposed to be 'located'. The idea can be brought out in the context of another, independent discussion in philosophy, namely, the problem of how to understand the unity of consciousness. What is it that makes distinct experiences at some time [be] the experiences of the same conscious subject? What explains co-consciousness? Instances of co-consciousness are all over the place. Imagine yourself walking on a road, while talking on your cell phone, watching the scenery before your eyes, hearing the distant sound of a train's horn, smelling the fresh bread that is being baked as you pass by the bakery, and being hungry—all at the same time. What makes all these quasi-simultaneously occurring experiences co-conscious, that is, the experiences of one unitary mind?

It is tempting for philosophers with a naturalistic inclination to start thinking about a physical place where all these experiences 'come together', so they appear as co-conscious, and that will be, according to these philosophers, the brain. My picture is quite different. Experiences do not *come* together; they *are* together all the way. The picture is not that of a bunch of rivers that end up flowing into the same sea or ocean, so that it is the fact of flowing into *the same sea or ocean* that makes them unitary in some way. The picture is that of a sea or ocean, very much unlike our real seas and oceans, flowing out into a myriad of branches and a myriad of other branches flowing back into it, such that *the whole system* composed of the ocean and the in and out flowing streams count as one system. The way a system is present in more than one location is not merely by having its parts in different places; a system *qua system* is present across various locations in space or time by its parts at those locations interacting with all the other parts in the way the system requires in order to really count as a system. This is the picture I have in mind when thinking about the nervous system composed of the CNS and the PNS. It is not that the PNS is merely a transmitter of neural 'messages' that come together in the brain to form a unitary consciousness at the phenomenal level, but rather the PNS is the structure that ensures that the body is *minded*, the structure that makes it possible for consciousness to be multiply located all over and inside the body. For experiences to be co-conscious is for them to be processes integrated with each other within the patterns of the same nervous system, CNS and PNS. If there are hard cases, for instance, thought experiments involving someone's brain being connected to someone else's limbs, these cases boil down to the

question of how to individuate nervous systems themselves. If my brain gets connected to the PNS of another person, while that other person's PNS gets disconnected from her brain, then in fact that PNS is not hers anymore; it becomes mine, and so it is my mind that suffuses her body, even though in many other ways (blood circulation, metabolism, etc.) those limbs are still hers. Phenomenologically, or as far as mindedness is concerned, those limbs are mine, because now I am the one who can use them as a way to have an intimate grip on the world.

To return to the idea of understanding the location of consciousness on the model of the recurrence of universals, my main hypothesis will be that sensory states are present both at the level of the CNS and that of the PNS, and more exactly that it is constituted by CNS and PNS processes. Now, the presence of consciousness in the body could be understood on the model of universals *simpliciter*, but I think a better picture is given by the notion of a distributional universal or property, a notion proposed by Josh Parsons (2004). A distributional property is, intuitively, a way of filling in or "painting" an extended object with some quality or qualities. To understand what we are talking about we should give a few examples: *being polka-dotted* (which is a color pattern distribution on a surface), *being hot at one end and cold on the other* (which is a way for heat to be distributed over an object), *having a rough texture* (which is a way crystals are distributed within a material), *having a uniform density throughout* (which is a way to distribute density throughout a solid object or a fluid).

Distributional properties are the best picture of the way I like to think of sensory states in this book, for two reasons. One is phenomenological, that is, related to how consciousness feels like or appears from the first-person perspective, and I have already touched upon it. Consciousness feels distributed throughout the body, and this is immediately apparent when we consider co-conscious states, like the ones described above. Although these co-conscious states are different in kind, as they are based on distinct sense modalities, they still appear phenomenally states of the same consciousness. The second reason for thinking of conscious states as involving distributional properties is neurophysiological. As will be made clear later in the book, sensory states, like pain, are not accounted for by a definite place in the brain, but as a continuous interaction among the peripheral nerve fibers, the spinal cord, and several areas in the brain. This means that a neuroscientific account of these states will involve large areas of both the CNS and the PNS, and the state itself is

therefore most naturally understood as a distributional property of the nervous system, where what is distributed is electrical activity.

Of course, the issues I have so far mentioned indiscriminately—phenomenal self-presence or being-there, location of consciousness, co-consciousness, system presence—are really distinct problems and have been discussed independently, but in the context of the corticocentrist prejudice I have pointed out above, which will later be exemplified in various chapters, they are different ways to make my main point to the effect that there is a good case to challenge this prejudice.

Back to my story. In short, within several months of the onset of the neuropathy a slow process of improvement started, first at the level of the hands, then, a few weeks later, at the level of the legs. I was testing myself every day for what I was or was not able to execute, so first I realized that my hand's grip had improved; I was able to hold a spoon, for instance, and later, when my legs started improving, I was able to hold onto the balustrade when trying to walk downstairs. As far as the legs are concerned, every day brought a small success: standing up by myself, walking to the window by myself, jumping up a couple of centimeters and landing safely, without my legs collapsing at the level of the knees, and finally being able to walk downstairs by holding onto the balustrade. This last achievement was quite important for me, as I remember its exact date, September 15, 2005, when I walked sixteen steps downstairs and up again.

Then things got much better, even professionally. In April 2006, with more than a year's delay, I finally made it to Australia, where I spent a whole year at the ANU's Philosophy Program at the Research School of Social Sciences—probably the greatest place on Earth for a philosopher to be. My neuropathy wasn't completely gone yet, but in August 2006 I was already able to run a few tens of meters on the shores of Kioloa Beach, 150 kilometers West of Canberra, on the South Pacific Ocean, where ANU has a campus, and where I had a chance to participate in the indubitably greatest two philosophy conferences in my life thus far. Let me use this space for thanking David Chalmers for making my great Australian experience, and many other things in my professional career, possible.

This book on the peripheral mind has been at the back of my mind for years, but it was only in 2011 that I thought I felt ready to actually approach this topic in writing. I hope it will at least offer some new insights into some old philosophical problems surrounding the life of the mind, which could be developed in the future, so the reader will, hopefully, not be disappointed.

