

Dear Mr. McGilchrist,

New Orleans, 2021

April 3rd.

(1)

I just finished reading *Master/Slave*, and I had to actively restrain myself from immediately starting over at the beginning & reading the whole book over again, which I will probably do anyway. I ordered it ~~the~~ after hearing your interview w/ Sam Harris because I have been acutely aware for a long time that there is a tremendous puzzle in the bilateral neural architecture, and I was so relieved to discover that someone had spent serious time trying to parse its meaning. Now, after finishing the book and sleeping on it a few nights, I feel a glorious sense of the <sup>greater</sup> fullness of my explanation for the mental — it is exactly like having been watching soccer games for years having assumed that all the players were on the same team, and now someone has finally clarified for me that in fact there is a struggle going on between two opposing parties — now so many more of the details of the scene make sense. It is fascinating that, as you have pointed out, many of the most striking "why" questions in neuroscience have been sidetracked in favor of "what" questions that entirely miss the point. It was such a relief to read your criticism of thinkers who simply "explain" things by redescribing them at a lower level. I want to thank you for that perception, and for helping me understand why there seem to be so many fascinating questions in our changing world that no one is taking up, or even seems to see as questions. I had begun to feel like I was alone in feeling like we really hadn't got a theory of cognition at all unless we could explain, among other things, why the brain was divided, and what that



meant about the way we bring forth a world with it.

I realize now thanks to you that I have been working on the applied problem of hemisphere relationship for years without knowing it, and that so many others have been doing so as well, perhaps for thousands of years. I wouldn't want to reduce all this work to <sup>the</sup> hemispherics, but knowing the details of what is done in what manner by each side, and knowing that there is the possibility of a healthy or unhealthy antagonism between them gives me the feeling that there is a wide-open door for therapeutic techniques and medicines that can help us bring forth a world in a way that we would prefer, that we will soon be able to choose the ways we use our hemispheres once we know what to look for. You have specified through the central metaphor of the book what that relationship should look like, which was a tremendously helpful normative claim. Being a right-brain person myself, I tend to agree with you, but I also now see where the power of the left-brain world view nests, and it explains both the ~~the~~ enrapturing quality of some of my forays into rationalism (like the philosophy of Plato, Kant, + Karl Popper,) and also why many conversations with rationalists have tended to stumble or fail when I perceive a





missing dimension to the question and they do not. (2)

This is what I mean by applied problem of hemispheric balance:  
Three years ago I found myself in the midst of a storm of personal crises - bankruptcy, divorce, <sup>false</sup> fraud allegations, and cancer diagnosis all at once. In reacting to this situation I exerted tremendous energy trying to change myself, + change the way I looked at the world. I realized that if I wanted to continue to be a trusted father to my young daughter I would need to find a way to release anger + bitterness and accept new realities quickly. I had been working on the puzzle for three or four years at that time of why our society is plagued by chronic disease, and I had already been through phases where I found the best explanations in the changes in the microbiome, then in the amount of sugar in our diet, but still I couldn't explain why either of these phenomena might not simply be effects rather than causes. To even pose chronic disease as one problem rather than forty was, I could see, unconventional, but I now can see that that itself is a result of a left-lateralized scientific culture. To me, if chronic diseases like obesity, cancer, heart disease, + autoimmunity are all correlated, doesn't it make more sense to suppose that they all have one cause rather than many?  
So I was in the midst of crisis, looking for a unified theory of mental + physical health,



and willing to try almost anything, when I began being drawn into the research on sleep. It seems clear to me that the effects of sleep deprivation, over a short term, amount to similar effects on the cardiovascular, <sup>metabolic,</sup> immune, + neurological systems <sup>to those</sup> that extrapolate themselves in the myriad symptoms of chronic disease over the scale of lifetimes. And it is easy to see how a pattern ~~of~~ of unhealthy cognition + metabolism ignited by a lack of sleep could feed back into our behavior, making it more difficult for us to sleep, thereby perpetuating a cycle. Subjects in Eve Van Cauter's experiments who have been deprived of sleep preferentially choose sugary foods + eat more of them - which of course explains diet + microbiome changes. But what could initiate this cycle, + ~~that~~ prevent us from solving it culturally by developing a culture that was more permissive of sleep, just as we have become more permissive of diet + exercise? There would have to be a causal stimulus that was unknown. Then I found the research on the sensitivity of the human circadian rhythm to light, especially blue light. It turns out that we have been sleeping, as a society, less than ~~seven~~ seven hours per night, while estimates of the sleep of people in the mid 20th century run above eight hours, and one study from the 1920s seems to suggest that we slept over 9 hours per night then. This is all summarized by Matthew Walker in Why We Sleep. Shortening our



circadian window for sleep by using artificial lights at night (3)  
could explain this sleep deficit — we are all waiting for our  
bodies to tell us to go to bed, while our bodies are waiting  
for the lights to tell ~~us~~ The human organism evolved in  
a light environment that was tremendously stable, +  
without perceiving any harm, we have radically de-stabilized it.  
This could be a cause that would be unlikely to also  
be an effect of chronic disease, an initial, efficient  
cause.

So I set about trying to set my circadian rhythm on a  
regular cycle, + trying to sleep as much as humanly  
possible, all of which worked wonders on my outlook +  
attitude, + made me much more curious about the  
obvious question — why do we need sleep? The  
instinctive answer, that we need time to release more  
energy from our food, turns out to be entirely false.  
To be sure I wasn't fooling myself, I started a  
practice of prolonged water fasting, which has an  
entire body of research behind it showing health benefits,  
a fact which is utterly strange from a linear point of  
view. I found in my self-experiments the same result  
that has been found in all organisms, that we need  
much less sleep + rest when fasted. After six days  
with only water, I was feeling well-rested after

about half my normal period of sleep. If sleep were for energy conservation, this result would be absurd. Instead, it convinced me that sleep is for repair only, for rebuilding.

This opened me up to the strange possibility that fatigue and satiation could be driving similar states of the body, and fasting and sleep could be driving their opposite. It was as if eating food were a form of exertion, that was causing damage at a low level that required the whole system to go into a repair mode to compensate.

Then I started to explore the ways that the brain states driven by fasting + sleep were similar... the feeling of integration, of holistic insight, of spiritual awareness, of the emotional subtleties, of aesthetics, of music, of spirituality - they both had these in common. In particular, the REM phase, the dreaming phase, when isolated, seems to have ~~the~~ <sup>the</sup> effect of amplifying this right-brain dimension or experience of life; without sufficient sleep perhaps our left hemispheres are overactive, or perhaps the right hemisphere needs more of what REM gives us, or perhaps sleep deprivation impairs both hemispheres but since the right is more important, we



feel its absence more? Religious traditions across history have<sup>(4)</sup> employed fasting, ~~and much~~ to "purify" so well as to promote reflection, to simplify prayer + meditation, to strengthen the body + the mind. The feeling of being fasted, several days in, is inexpressibly rewarding. Its like the colors + meanings of the world are sharper, but its problems are deeper + more interesting. My only metaphor is that the fed brain is an skier, + the fasted brain is an snowshoes, with no set tracks, but free to mush about and dawdle + explore + unlimited by the conventional thought patterns. Mark Mattson at NIH has done some great work on fasting. Strangely, fasting is exertion, it is a challenge to the brain, but still perhaps like physical exertion, it has this powerful hormetic effect.

The whole concept of hormesis, and even what is now called phytohormesis, began to make more and more sense to me - that it is somehow by challenging the dimensions of our physical + mental selves that we strengthen them, by damaging in certain ways that we drive better function. Phytohormesis is the idea that eating compounds, like resveratrol, from plants that have been stressed drives metabolic pathways that prepare us for stressful conditions. But hormesis,

generally, began to look more + more to me to be something which is right near the essence of what a living organism really is; a living being is something, a process, a unity, that when provoked or disturbed, reacts in a way that protects its integrity. And then it began to look to me like this was something near the heart of the whole middle of epistemology as well, the whole perplexing mystery of cognition — how do we build knowledge?

I had been deeply inspired by David Deutsch at Oxford, and ~~that~~ he led me to Karl Popper + the view of knowledge as not a matter of induction or "building" at all but as a series of conjectures + refutations. But the open glaring question is — where do conjectures come from? Computer-oriented philosophers have been trying, without success, to construct algorithms that creatively "find" truths. It began to occur to me that both of these problems might find their resolution together — that if we knew why we sleep, and dream, in other words why we have evolved to be so sensitive to damage that we must spend a third of our lives paralyzed + unconscious in order to recover, and why it is that we cannot run and run until we stare to death, but rather become exhausted while we still carry months' worth of energy stores



within us, that we might have the key to the whale's (5) mystery.

The Neo-Darwinists have attributed all the creativity of all the forms of life to mutations in the DNA. But it occurred to me that different parts of the genome mutate at different speeds, + that this susceptibility to damage must itself be under evolutionary control, so that more useful sequences are held in more protected positions, + sequences that might profitably be changed are in places where they might be damaged more frequently. Then it occurred to me that there must be an evolved degree of plasticity, a "mutation rate," in every network + tissue of the body, that gives it a certain resistance to certain sorts of damage but an intentional, so to speak, vulnerability to other sorts of trauma. Sleep must be the phase when, having absorbed as much trauma as our system can handle, we turn the business of the whole system to running its repair algorithms, its holistic healing. ~~Thus~~ the importance of this has escaped reductionist science because it cannot be measured or quantified readily - without knowing the positions + velocities of all the atoms in the body we cannot "chart" the process of fatigue + repair - yet we can feel it!

How do we know when another person, or an animal, recognizes or knows something? It's because of the way they set, which involves the whole body, and the



nervous system is recognized to be the part of the whole system that integrates the behavior of all the other parts into a functional unity. This way of thinking of cognition as a whole-body process involving pulses of trauma + stochastic heat decay followed by a comprehensive repair made led me to an obscure, almost forgotten theory in cognitive science called the "Santiago Theory" written in the 1970s by Maturana + Varela. I found it through the splendid integrationist account of physiology recently published by Denis Noble (also at Oxford) Dance to the Tune of Life, as well as a textbook he recommended called The Systems View of Life by Capra + Luisi. Noble, + the Santiago authors, basically perceive organisms as unities with a circular form of organization, where the whole constrains the operation of the parts, and makes them function. The excitement of a cardiac cell, for example, makes no sense at the level of the cell itself, nor yet at the level of tissue which undergoes waves of electrical activity, nor even at the level of the heart organ, which contracts, it's only at the level of the organism as a whole, where you see the need for distribution of oxygen + nutrients that the patterns of excitement make sense, and even more at the level of the environment, or niche, of the organism.



When you see that the person is running in a race, etc, that the low-level pattern makes any sense. In other words, the causal structures that explain biology run in circles up from the level of molecules, like DNA, to the level of the niche, + back down again. We are made up of circles within circles, constrained + shaped by the primacy not of a certain molecule, but by the shape of opportunities for life and homeostasis afforded by the niches we are in. All this would sound like gobbledy-gook to a hardcore reductionist, but once you see this picture its impossible to un-see it. It explains so much! It explains, for example, how the microbiome, despite being composed of trillions of alien microbes, yet forms an individual community in each of us in a stable pattern like a ~~finger~~ <sup>finger</sup> print, and is constrained in such a way that it behaves as if it is an organ of our own body.

If I am correct in my guess about the primacy of sleep in cognition, then this view would see evolution not only as a one-way feedback, through natural selection, ~~of~~ from one-way trials of organism types ventured by DNA, from which intelligence emerged as a special-purpose algorithm only in certain animals like ourselves, but it would see evolution as a two-way feedback process conducted between the configuration of an organism, especially a



highly plastic one like ourselves, + the niche that the organism is in. Intelligence, then would be a matter of increased sensitivity to the forms of trauma afforded by the human niche. The actual content of the repair algorithms shouldn't matter very much, all that matters is that they lead, in that they strengthen structures ~~that~~ or connections that proved useful for maintaining homeostasis, and that they re-form broken connections into a new configuration. This would be the answer to Popper's problem - these new configurations of the whole body are what surface as "conjectures."

Before I end this admittedly too-long letter, I want to quickly tell you about two personal experiences I have had that pertain also to hemisphere balance, that I didn't recognize until I read your book. The first, which having interacted w/ San Hamis I'm sure you have recieved a lot of mail about, is my experience with psychedelics. I don't have much new to say other than that it appears to me now that a high-dose trip basically takes the left hemisphere off-line entirely, and allows the brain to re-organize afterwards in the right hemisphere's favor. The other is that I have an odd mode of exercise driven by all this research, that I didn't realize until now



might be a pretty good "hack" for placing the left hemisphere into the service of the right. I run barefoot in the grassy levees + parks near my home in New Orleans, feeling the ground with the skin of my feet, feeling the temperature + wind on my usually bare chest, listening to music, and at the same time juggling as many balls or clubs as I can manage. Juggling is grasping, and running is repetitive motion, but putting the grasping ~~the~~ action at the service of the peripheral vision, and the running subservient to the pattern of the juggle, and the whole thing subservient to the wind patterns I can feel with my whole body + the contours of the ground, + the rhythms + tones of the music, is an exhilarating feeling. Since reading Master, I now can recognize that inadvertently this experience may be so incredibly enjoyable for me because of the way it integrates left-hemisphere function into a holistic experience of music, novelty, + challenge coordinated by the right hemisphere. After this I always feel like I have made philosophical progress, as well as ~~gained~~ some physical fitness.

I thought you might enjoy reading about that. ~~The way~~  
 I have hand-written this letter to you because I

find that my letters are more thoughtful when written rather than typed. If you would like to email me back, instead of writing, that is of course welcome, though a response is by no means expected or required. I have thoroughly enjoyed engaging with your intellectual work, and I'm very grateful for the evident care you took in creating it! My email address is [charlie.munford@gmail.com](mailto:charlie.munford@gmail.com), and my website is [www.talkingoctopus.com](http://www.talkingoctopus.com), but I have posted some of these thoughts under my name on [medium.com](http://medium.com). I am looking for ways to go further by having these ideas criticized + developing them, and sharing them with the victims of our too leftwise world.

All the best to you, Sir.

Sincerely,

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