TEXTO 1

THE HUMAN BRAIN

The father of neuroscience—Santiago Ramón y Cajal, a Spanish histologist—may not enjoy the fame of other 19th-century giants like Charles Darwin and Louis Pasteur, but his achievements make him their equal. Over 30 years, based in Barcelona and then in Madrid, Cajal greatly improved the staining technique invented by his rival Camillo Golgi, with whom he shared a Nobel prize in 1906. This made nerve cells visible under a microscope, revealing the brain's structure in unprecedented detail. Cajal showed that neurons are independent cells, settling the bitterest debate in microbiology of his lifetime. And he predicted the course of more than a century of subsequent scientific work. Cajal was a talented artist and photographer too, preparing thousands of illustrations in ink of the cells that he observed through the microscope. His drawings inspired the Surrealists Salvador Dalí, Luis Buñuel and Federico García Lorca in the 1920s and continue to appear in neuroscience papers today. "The Beautiful Brain"— 80 of Cajal's exquisite illustrations paired with brief essays on his life and other subjects—is an introduction to the microscopic universe of the mind disguised as a coffee-table book. "The Brain in Search of Itself"—an award-winning biography—sets Cajal's life in the context of a turbulent period in Spain's history.

If the reader is in search of a single comprehensive introduction to the brain, this is it, "The Idea of the Brain: The Past and Future of Neuroscience". Matthew Cobb's intellectual history traces the development of humanity's understanding of the brain over millennia, from the musings of Hippocrates, a physician of classical Greece, to the contemporary debate over the nature of consciousness. Mr Cobb discusses everything from the lives of microscopic brain cells to the macroscopic structure of the brain, adding a generous dose of philosophy of mind. The book shows that neuroscience—more than any other scientific discipline—is defined by technological metaphors. Now, as artificial intelligence dramatically improves, it can be difficult not to view the brain as an organic supercomputer. But Mr Cobb urges caution. Not long ago neuroscience conceived of the brain as a hydraulic machine. Then it became something like a telegraph network, and after that a telephone exchange. The imagination of neuroscientists has been shaped by the advanced technologies of their times. There is little reason to expect computer metaphors to look less naive to future scientists.

The previous three books trace the history of brain science. This pair of award-winning books by Peter Godfrey-Smith—a philosophy professor at the University of Sydney, amateur evolutionary biologist and scuba diver—instead traces the evolutionary history of the brain. "Other Minds" explores intelligence through the lens of the octopus. Whereas other smart creatures—mammals and birds—have the same basic brain structure as humans, cephalopods—octopus, squid and cuttlefish—evolved sophisticated minds independently, out on a distant limb of the animal family tree. The octopus is thus the closest thing there is on Earth to an alien intelligence. "Metazoa", the sequel to "Other Minds", widens the scope beyond cephalopods. It shows that consciousness is far more varied, intricate and widespread than is generally acknowledged, which has implications for how humans ought to treat other denizens of the natural world. Mr Godfrey-Smith includes in these beautifully written books descriptions of octopus and other marine life as he encounters them in his dives off Australia's coast.

Gary Marcus is a cognitive scientist and a leading thinker on artificial intelligence. In this book he dismantles the idea that the brain is an elegantly designed organ of thought. In fact, it is a "kluge", a clumsily engineered machine, pieced together by natural selection from imperfect solutions to evolutionary problems. Mr Marcus winds his way through the brain's different functions—storing memories, constructing beliefs and making decisions, among others. He shows that, although the brain may work well most of the time, it is prone to systematic failures that reveal a surprising amount about the trade-offs made in the course of its haphazard evolution.

You may think that your perceptions and thoughts are an accurate depiction of the world around you, constantly refreshed by experience and what you make of it. Not so, writes Anil Seth, a professor at the University of Sussex. In fact, perception is a "controlled hallucination". We're not really seeing and hearing things as they actually are. Instead, our brains are "prediction machines", which make guesses about what we'll encounter and adjust when something unexpected crops up. "Perception happens through a continual process of prediction error minimisation," Mr Seth writes. His view of consciousness seems a little depressing: we inhabit mostly a self-created world. But nature doesn't care. The brain has evolved to aid our survival, not to perceive truth.

Oliver Sacks, a neurologist, i.e., brain doctor, explores the science of the brain in the light of quotidian life. In this classic collection of case histories, he describes the lives of patients with rare neurological abnormalities that alter their experience of the world around them. On his first visit to Sacks's office the title character, a music teacher whose brain does not recognise objects correctly, grasps his wife's head, thinking it is his hat. Sacks's histories are like short stories that describe people grappling with their wayward minds.

Fonte: adaptado de:https://www.economist.com/the-economist-reads/2024/05/03/these-books-reveal-why-the-brain-is-the-biggest-mystery-of-all. **Acesso em:** 14 maio 2024.

TEXTO 2

VERMONT MOVES TO HOLD FOSSIL-FUEL COMPANIES LIABLE FOR CLIMATE-CHANGE DAMAGE

On July 10, 2023, Vermont's state capital, Montpelier, was hit with more than five inches of rain. The city sits at the confluence of the main stream of the Winooski and its north branch; the former is considered to be at flood stage when the water level reaches fifteen feet. That day, the Winooski rose above twenty-one feet. The city's downtown business district was inundated. Cars were drowned, shops were ruined, and people canoed or paddle boarded past shuttered businesses.

As the world warms, more and more of New England's rain is falling in extreme precipitation "events," so the downpour, though record-breaking, was still in keeping with recent trends. "It's definitely going to happen again," Lauren Oates, the director of policy and governmental affairs for the Nature Conservancy in Vermont, predicted a few weeks after what became known as the Great Vermont Flood of 2023. And, indeed, five months later, it **did**; in mid-December, the local rivers reached flood stage again, this time owing to a combination of heavy rain and snowmelt. "Climate change is real," Vermont's governor, Phil Scott, a Republican, said after the second round of flooding. "I don't think anyone should be surprised about this."

Recently, with memories of the floodings still fresh, Vermont lawmakers voted to assess a fee on fossil-fuel producers to pay for "climate-adaptive" infrastructure projects in the state. The bill operates on the polluter-pays principle, the basis of the federal Superfund law—it's been dubbed the Climate Superfund Act. Last week, the act was sent to Governor Scott, who, despite his December statement, is expected by many to veto it. It will then go back to the legislature, which is expected to override his veto in a special session, already planned for June. (The bill passed with super-majorities in both houses.) "We're confident," Paul Burns, the executive director of the Vermont Public Interest Research Group (VPIRG), a key backer of the bill, said, referring to an override. "Of course," he added, "you always want to be careful on this kind of thing." (*VPIRG* lost years' worth of records in July's flood.)

The Climate Superfund Act doesn't specify how much money should be collected; instead, it directs the state treasurer to determine how much it has cost Vermont to deal with the impacts of climate change. (A 2022 study from researchers at the University of Vermont predicted that, in the next hundred years, the cost of property damage from flooding alone could top five billion dollars.) The Agency of Natural Resources is then to assess fees on fossil-fuel companies based on their greenhouse-gas emissions between 1995 and 2024.

Assuming events play out as predicted, Vermont's climate superfund will be the first of **its** kind in the nation. The measure has been called "landmark," "pioneering," and "groundbreaking." "I am proud that Vermont will go further than any other state in forcing the fossil fuel industry to pay for the destruction caused by the crisis of climate change," Bernie Sanders, Vermont's senior U.S. senator, recently tweeted.

It will also, almost certainly, be the first of its kind to be litigated. As Martin Lockman and Emma Shumway, fellows at the Sabin Center for Climate Change Law at Columbia Law School, observed, in a recent analysis, fossil-fuel companies, "along with sympathetic political and industrial organizations, states, and/or municipalities, will inevitably challenge" the measure in court. Lockman and Shumway listed many possible

legal arguments that opponents of the act could raise, including that state governments lack the authority to enforce such sweeping measures, that the act unfairly imposes liability retroactively, and that the measure is preempted by federal law—in particular, the Clean Air Act. It's entirely possible, perhaps even likely, that Vermont's climate superfund will be struck down before it collects a penny.

But, even if Vermont's climate superfund never actually funds anything, the passage of the act is significant and deserves to be celebrated. It shows that there's a new constituency willing to stand up to Big Oil (and gas and coal): state government. Increasingly, states are being asked to foot the bill for climate change, and the costs—of installing floodwalls, repairing washed-out bridges, reengineering storm-sewage systems, opening cooling centers, and on and on—are only going to grow. **Meanwhile**, in recent years, oil companies have racked up record profits. (In 2023—the warmest year on record by a significant margin—ExxonMobil, Chevron, Shell, and Total Energies collectively made more than a hundred billion dollars.) Jon Groveman, the policy-and-water-program director at the Vermont Natural Resources Council, put it this way, in testimony before the Vermont Senate Judiciary Committee: "The impacts from climate change are so vast and serious, we can't afford not to try to make the oil companies responsible for this harm" to pay their "fair share."

Several other states are considering legislation similar to Vermont's, including Maryland, Massachusetts, and New York. Just the other day, in a strongly worded editorial, the Los Angeles *Times* urged California lawmakers to approve a climate-change superfund bill that's been introduced in that state's senate. The time has come for oil companies "to sacrifice some of their huge profits to clean up the environmental mess they helped create," the *Times* wrote. "It's not fair for taxpayers to shoulder such a staggering burden." Vermont, Massachusetts, and California are, of course, all blue states. But climate change is truly nonpartisan. Last week, as Vermont's Climate Superfund Act was wending its way toward the Governor's desk, the National Oceanic and Atmospheric Administration issued its forecast for the upcoming hurricane season. The season is expected to be unusually busy, with up to twenty-five tropical storms—an ominous prediction for red states such as Florida and Louisiana.

As Governor Scott observed, climate change is real. Someone is going to have to pay to deal with the consequences—either those who profited from selling fossil fuels or governments and individuals dealing with the damage. As that reality sinks in, **perhaps** the politics around climate change will finally—belatedly—start shifting. Where science hasn't convinced lawmakers, **maybe** "staggering" costs will.

Fonte: Adaptado de: Colbert, Elizabeth. Vermont Moves to Hold Fossil-Fuel Companies Liable for Climate-Change Damage. Disponível em: https://www.newyorker.com/news/daily-comment/vermont-moves-to-hold-fossil-fuel-companies-liable-for-climate-change-damage. **Acesso em:** 28 May 2024.

QUESTÕES

As questões de 1 a 5 referem-se ao TEXTO 1:

1) Trata-se o gênero textual do TEXTO 1 de

(A) biografias de neurocientistas.

(B) um editorial sobre trabalhos em neurociência.

(C) resenhas críticas de obras científicas.

(D) uma sinopse de artigos científicos publicados.

2) O que diz o texto sobre Santiago Ramón y Cajal e suas realizações?

3) Sobre o que falam "Other Minds" e "Metazoa", de Peter Godfrey-Smith, e como diferem das três obras citadas anteriormente nos primeiros parágrafos?

4) Analise as seguintes afirmativas sobre cada autor:

I. Santiago Ramón y Cajal é o autor de "The Idea of the Brain: The Past and Future of Neuroscience".

II. Mathew Cobb e Gary Marcus são neurocientistas contemporâneos.

III. Oliver Sacks descreve em suas publicações a luta diária dos pacientes com distúrbios neurológicos.

IV. Anil Seth confirma a exatidão com que nosso cérebro percebe o mundo ao nosso redor.

É CORRETO o que se afirma em:

(A) IV, apenas.

(B) TODAS as afirmativas.

(C) I e II, apenas.

(D) II e III, apenas

5) Há uma analogia entre o cérebro humano e máquinas ineptas, desajeitadas nas obras de

(A) Santiago Ramón y Cajal e Louis Pasteur.

(B) Gary Marcus e Anil Seth.

(C) Peter Godfrey-Smith e Matthew Cobb.

(D) Oliver Sacks e Camillo Golgi.

As questões de 6 a 10 referem-se ao TEXTO 2:

6) Analise as seguintes afirmativas sobre as inundações ocorridas em Vermont:

I. Ambas as inundações foram previstas pela diretora Lauren Oates.

II. Ambas as inundações foram atribuídas às mudanças climáticas.

III. Ambas as inundações foram causadas por chuvas e derretimento de neve.

IV. A segunda inundação ficou conhecida como A Grande Inundação de Vermont de 2023.

São VERDADEIRAS:

(A) I e III, apenas.

(B) I, II e IV, apenas.

(C) I, III e IV, apenas.

(D) II apenas.

7) Qual é a proposta do Superfundo Climático e de que forma a taxação será implementada?

8) Quais são alguns dos possíveis argumentos listados contra a Lei do Superfundo Climático e como eles podem impactar sua implementação?

9) Analise as seguintes afirmativas sobre a Lei do Superfundo Climático:

I. Visa estabelecer uma taxa que será revertida para projetos climáticos.

II. Custará 5 bilhões de dólares para ser implementada.

III. É defendida como uma forma de responsabilizar as empresas pelos danos causados ao meio ambiente.

IV. Está inspirando outros estados a elaborarem leis similares.

São VERDADEIRAS:

(A) I e II, apenas.

(B) II e IV, apenas.

(C) I, III e IV, apenas.

(D) II, III e IV, apenas.

10) Em relação aos termos destacados no texto, é CORRETO afirmar que

(A) "did", destacado no 2º. parágrafo**,** pode ser substituído por **"happened"**, sem alterar o sentido do texto.

(B) "its", destacado no 5º. parágrafo, refere-se a **"Vermont"**.

(C) "Meanwhile", destacado no 7º. parágrafo, pode ser substituído por **"While"** sem alterar o sentido do texto.

(D) "perhaps" e **"maybe",** destacados no último parágrafo, não podem ser intercambiados sem alterar o sentido do texto.

RASCUNHO

RASCUNHO

EXAME DE PROFICIÊNCIA EM COMPREENSÃO DE LEITURA EM INGLÊS - EDITAL 03/2024

CHAVE DE RESPOSTAS

QUESTÃO	
1	Ⓐ Ⓑ ● Ⓓ
2	***O histologista espanhol Santiago Ramón y Cajal – pai da neurociência - não desfrutou da mesma fama que Darwin e Pasteur, dois cientistas gigantes do século IXX, porém seus estudos contribuíram enormemente para a área da neurociência, o que o tornou tão importante quanto. Realizou melhorias na técnica de coloração, inventada por seu rival Camillo Golgi, com quem dividiu um prêmio Nobel em 1906. Essa técnica tornou possível a visualização microscópica de células do tecido nervoso, revelando a estrutura cerebral em detalhes que nunca haviam sido vistos antes.***
3	***Esses dois livros exploram a inteligência a partir da perspectiva dos cefalópodes, que são os polvos, lulas e chocos, criaturas que desenvolveram uma inteligência sofisticada, independentemente de outras do reino animal. "Metazoa" vai além do escopo dos cefalópodes e mostra como a consciência é bem mais diversificada, complexa e extensa do que em geral se imagina, o que traz implicações sobre a forma como seres humanos deveriam tratar outros habitantes do mundo natural. As obras dos parágrafos anteriores traçam a história da ciência do cérebro e "Other Minds" e "Metazoa" traçam a história da evolução do cérebro.***
4	Ⓐ Ⓑ Ⓒ ●
5	Ⓐ ● Ⓒ Ⓓ
6	Ⓐ Ⓑ Ⓒ ●
7	***A lei do Superfundo climático propõe estabelecer uma taxa para os produtores de combustíveis fósseis com a finalidade de financiar projetos de infraestrutura "adaptáveis ao clima" no estado. O projeto de lei opera com base no princípio do poluidor-pagador, fundamento da lei federal do Superfundo - apelidado de Lei do Superfundo Climático.*** ***A lei não especifica o valor que será coletado, mas orienta o tesoureiro do estado a determinar quanto custou à Vermont lidar com os impactos das mudanças climáticas. A Agência de Recursos Naturais deverá, então, aplicar taxas para as empresas de combustíveis fósseis com base em suas emissões de gases de efeito estufa entre 1995 e 2024.***
8	***Martin Lockman e Emma Shumway listaram muitos argumentos possíveis que poderiam ser levantados contra a Lei do Superfundo Climático, tais como de que os governadores não têm autoridade para aplicar tais medidas, que a lei injusta impõe obrigações retroativas, e que a medida é prevista pela lei federal, principalmente, pela Lei do Ar Limpo.***
9	Ⓐ Ⓑ ● Ⓓ
10	● Ⓑ Ⓒ Ⓓ