PSYCHOLOGY

My Brain Doesn't Picture Things

I can't imagine sights, smells, or sounds. What's wrong with me?

我无法想象景象、气味或声音。我怎么了?

BY MARCO GIANCOTTI October 4, 2023

作者：马可·詹科蒂 2023 年 10 月 4 日

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I'm lying down in a white cylinder barely wider than my body, surrounded on all sides by a mass of sophisticated machinery the size of a small camper van. It's an fMRI machine, one of the technological marvels of modern neuroscience.

我躺在一个只比我身体宽一点的白色圆柱体中，四周环绕着大量小型露营车大小的精密机械。这是一台功能磁共振成像机器，是现代神经科学的技术奇迹之一。

Two small inflatable cushions squeeze my temples, keeping my head still.

两个小充气垫挤压我的太阳穴，让我的头保持静止。

"We are ready to begin the next batch of exercises," I hear Dr. Horikawa's gentle voice saying. We're underground, in one of the laboratories of Tokyo University's Faculty of Medicine, Hongo Campus. "Do you feel like proceeding?"

"我们已经准备好开始下一批练习了。"我听到堀川博士温柔的声音说道。我们在东京大学医学院本乡校区的地下实验室之一。 "你想继续吗？"

"Yes, let's go," I answer.

"是的，我们走吧，"我回答。

The machine sets in motion again.

机器再次启动。

A powerful current grows inside the cryogenically cooled wires that coil around me, showering my head with radio waves, knocking the hydrogen atoms inside my head off their original spin axis, and measuring the rate at which the axis recovers afterward.

缠绕在我周围的低温冷却电线内产生强大的电流，无线电波照射到我的头部，将我头部内的氢原子撞离原来的自旋轴，并测量轴随后恢复的速度。

To the sensors around me, I'm now as transparent as a glass of water. Every tiny change of blood flow anywhere inside my brain is being watched and recorded in 3-D.

对于我周围的传感器来说，我现在就像一杯水一样透明。我大脑内任何地方血流的每一个微小变化都会被以 3D 方式观察和记录。

top hat." I close my eyes and I imagine a top hat. controller in my hand.

几秒钟过去了，一个合成的女声在电子噪音中传入我的耳朵："高顶帽子。"我闭上眼睛，想象一顶大礼帽。几秒钟后，一声嘟嘟声告诉我，我应该对我脑海中的画面的质量进行评价，这是我用手中的控制器进行的。

The voice speaks again: "fire extinguisher," and I repeat the routine. Next is "butterfly," then "camel," then "snowmobile," and so on, for about 10 minutes, while the system monitors the activation of my brain synapses.

那个声音再次响起："灭火器"，我重复了一遍。接下来是"蝴蝶"，然后是"骆驼"，然后是"雪地摩托"，等等，持续大约 10 分钟，同时系统监控我大脑突触的激活情况。

> *Understanding aphantasia means learning something more about what it means to be human.*
> *了解失语症意味着更多地了解人类的意义。*

For most people, this should be a rather simple exercise, perhaps even satisfying. For me, it's a considerable strain, because I don't "see" any of those things.

对于大多数人来说，这应该是一个相当简单的练习，甚至可能令人满意。对我来说，这是一个相当大的压力，因为我没有"看到"任何这些东西。

For each and every one of the prompts, I rate my mental image "0" on a 0 to 5 scale, because as soon as I close my eyes, what I see are not everyday objects, animals, and vehicles, but the dark underside of my eyelids. I can't willingly form the faintest of images in my mind.

对于每一个提示，我都会在 0 到 5 的范围内将我的心理形象评为"0"，因为只要我闭上眼睛，我看到的就不是日常物体、动物和车辆，而是黑暗的底面我的眼睑。我无法心甘情愿地在脑海中形成最模糊的形象。

And, although it isn't the subject of the current experiment, I also can't conjure sounds, smells, or any other kind of sensory stimulation inside my head. I have what is called "aphantasia," the absence of voluntary imagination of the senses. I know what a top hat is.

而且，虽然这不是当前实验的主题，但我也无法在脑海中召唤声音、气味或任何其他类型的感官刺激。我患有所谓的"失语症"，即缺乏感官的自主想象。我知道什么是高顶礼帽。

I can describe its main characteristics. I can even draw an above-average impression of one on a piece of paper for you. But I can't visualize it mentally. What's wrong with me?

我可以描述它的主要特征。我什至可以在一张纸上为您画出高于平均水平的印象。但我无法在精神上想象它。我怎么了？

My whole life, I've been aware—sometimes painfully so—of my own peculiarities, strengths, and weaknesses: A terrible memory, a good sense of direction, and what I felt was a lack of "visual creativity," among others.

在我的一生中，我一直意识到——有时是痛苦的——自己的特点、优点和缺点：糟糕的记忆力、良好的方向感，以及我觉得缺乏"视觉创造力"等等。

I always thought these were just random, disconnected traits, and didn't think much about them. Who doesn't have their quirks?

我一直认为这些只是随机的、互不相关的特征，并且没有考虑太多。谁没有自己的怪癖？

Then, some time in 2021 (not coincidentally, I forget exactly where or when) I read about aphantasia for the first time, and it hit me hard: When people say "picture this scene in your head," they aren't speaking metaphorically! *People can actually invoke shapes and colors in their minds.* The shock of this realization was followed by a piecing together of many of those little idiosyncrasies of mine into a single, coherent phenomenon that fit with the scientific description of the condition.

然后，在 2021 年的某个时候（并非巧合，我忘记了具体地点或时间），我第一次读到有关失语症的内容，这对我打击很大：当人们说"在脑海中想象这个场景"时，他们并不是在隐喻地说话！人们实际上可以在脑海中调用形状和颜色。这种认识的震惊之后，我将我的许多小特质拼凑成一个单一的、连贯的现象，符合对这种情况的科学描述。

By the time my formal diagnosis came, I was already quite sure I was aphantasic.

当我得到正式诊断时，我已经很确定自己患有失语症。

ye" go back to the 1800s, with several cases

我和很多人都有这个特质。关于声称没有"心灵之眼"的人的偶尔报道可以追溯到 1800 年代，整个 20 世纪的科学文献中曾简要提及过几个案例。

Yet these cases were ignored by the broader scientific community, relegated to the fringes of the field as outliers or misunderstandings.

然而，这些案例被更广泛的科学界忽视，被视为异常值或误解，被置于该领域的边缘。

It was only in the 2010s that the topic began to attract attention. A man approached Adam Zeman, professor of cognitive and behavioral neurology at the University of Exeter, in the United Kingdom, claiming to have lost his mind's eye following a heart surgery.

直到2010年代，这个话题才开始引起人们的关注。一名男子找到英国埃克塞特大学认知和行为神经学教授亚当·泽曼，声称自己在心脏手术后失去了神眼。

In 2010, Zeman published a study showing that the man had different brain activation patterns from other subjects when trying to imagine things.[1]

2010 年，泽曼发表的一项研究表明，该男子在尝试想象事物时具有与其他受试者不同的大脑激活模式。[1]

This was an interesting case study on its own, but something more surprising followed the publication of Zeman's paper: Several people contacted him claiming to have had that same condition for as long as they could remember.

这本身就是一个有趣的案例研究，但在泽曼的论文发表后发生了更令人惊讶的事情：有几个人联系他，声称从他们记事起就患有同样的病症。

Zeman and his collaborators assessed their claims using the Vividness of Visual Imagery Questionnaire (VVIQ), a popular measure of internal visualization quality, and found that these individuals indeed seemed to have little to no ability to visualize at will.

泽曼和他的合作者使用视觉图像生动度问卷（VVIQ）（一种流行的内部可视化质量衡量标准）评估了他们的说法，发现这些人确实似乎几乎没有能力随意可视化。

The researchers published these findings in 2015, and proposed to call the condition "aphantasia"—literally "the absence of images" in Greek.[2]

研究人员于 2015 年发表了这些发现，并提议将这种情况称为"失语症"——希腊语字面意思是"图像缺失"。[2]

Illustration by Paulaparaula / Shutterstock
插图由 Paulaparaula / Shutterstock

With this new label, word about aphantasia finally started to spread within the neuroscience community and the broader public. More groups of researchers around the world began studying it, and every year a larger number of papers on the topic reaches scientific journals.

有了这个新标签，关于失语症的消息终于开始在神经科学界和更广泛的公众中传播。世界各地越来越多的研究人员开始研究它，每年都有更多关于该主题的论文发表在科学期刊上。

We now know that roughly 1 out of 25 people are "aphantasics" (or "aphants," in internet slang)—a rare condition, but common enough that each

我们现在知道，大约每 25 人中就有 1 人患有"失语症"（或互联网性语中的"失语者"）——这种情况很少见，但很常见，以至于我们每个人都必须认识几个属于这一类别的人。

For those equipped with a trusty inner eye, hearing about aphantasia can be a puzzling experience. How can someone even function as a human being without the ability to imagine pictures and sounds?

对于那些拥有可靠内在之眼的人来说，听到失语症可能是一种令人费解的经历。如果一个人没有想象图像和声音的能力，他怎么能像人类一样发挥作用呢？

The biggest source of confusion with aphantasia comes from the assumption that "imagination" and "forming mental images" are one and the same thing. This is, of course, incorrect. I'm able to imagine anything, except it is all devoid of sensory representations.

失语症的最大混淆来源来自于"想象力"和"形成心理图像"是一回事的假设。这当然是不正确的。我可以想象任何事物，只不过它完全没有感官表征。

The imagined objects exist in my mind as interconnected concepts, like bullet lists of facts about things. For example, when I reread the scene in Ernest Hemingway's *The Old Man and the Sea* where the protagonist battles a giant marlin, I'm able to take in a large amount of information: We're on his skiff, bobbing on the waves of the deep waters of the Gulf of Mexico, the sun hammering mercilessly on the poor man while he pulls on the line for hours on end.

想象中的物体作为相互关联的概念存在于我的脑海中，就像关于事物的事实的项目符号列表一样。例如，当我重读欧内斯特·海明威的《老人与海》中主人公与一条巨大的马林鱼搏斗的场景时，我能够吸收大量的信息：我们在他的小船上，在海浪中漂浮。在墨西哥湾的深水中，太阳无情地照在这个可怜的人身上，而他则连续几个小时拉着绳子。

I can reason about the situation, try to predict what could happen next, and relate with the character's plight.

我可以推理情况，尝试预测接下来会发生什么，并与角色的困境联系起来。

None of this requires having a picture of the scene in my head. This way of imagining is, perhaps, more abstract than what most people are used to, but not significantly less useful.

这些都不需要我脑子里有这个场景的画面。这种想象方式也许比大多数人习惯的更抽象，但用处却并没有明显降低。

A surprising aspect of this is that, for me, the physical "bullet-list concepts" don't just float haphazardly in nothingness, but are embodied in coherent three-dimensional structures that I can manipulate in my mind.

令人惊讶的是，对我来说，物理"项目符号列表概念"不仅仅随意漂浮在虚无中，而是体现在我可以在脑海中操纵的连贯的三维结构中。

In the scene of the old fisherman, I can imagine moving around the small boat, sitting down next to Santiago, and I can "feel" the monstrous mass of the fish floating near the vessel.

在老渔夫的场景中，我可以想象在小船周围移动，坐在圣地亚哥旁边，我可以"感觉"到船附近漂浮着巨大的鱼群。

This spatial awareness might be what allows me to find my way around my bedroom in darkness: I know where the furniture is and the rough distances between things even without seeing them.

这种空间意识可能使我能够在黑暗中找到我的卧室周围的路：即使没有看到家具，我也知道家具在哪里，以及物体之间的大致距离。

The science is still unclear as to why someone like me can form spatial thoughts without the accompanying imagery, but some speculate that it might have something to do with a separation of these functions in and around the visual cortex.

科学仍然不清楚为什么像我这样的人可以在没有伴随图像的情况下形成空间思维，但一些人推测这可能与视觉皮层内部和周围的这些功能的分离有关。

For non-aphants, it's also hard to imagine how those of us without this sensory mind's eye remember events if we can't call to mind images, smells, or sounds. Scientists have begun trying to untangle this difficult question about the brain as well. In a 2015 paper, a group of researchers from the University of Toronto led by psychologist Daniela Palombo identified a new syndrome they called "Severely Deficient Autobiographical Memory," or SDAM for short.[3] People with SDAM lack the ability to relive past experiences in their minds. While this condition is rare among the general population, a preliminary survey hints at a link with aphantasia, with as many as 51 percent of a sample of 2,000 SDAM individuals also having

对于非失语者来说，也很难想象如果我们不能回想起图像、一缕线声音，那么我们这些没有这种感官心灵之眼的人如何记住事件。科学家们也开始尝试解开这个关于大脑的难题。在 2015 年的一篇论文中，心理学家丹妮拉·帕伦博 (Daniela Palombo) 领导的多伦多大学研究小组发现了一种新的综合症，他们称之为“自传体记忆严重缺陷”，简称 SDAM。[3] 患有 SDAM 的人缺乏在脑海中重温过去经历的能力。虽然这种情况在一般人群中很少见，但一项初步调查暗示与失语症有关，在 2,000 名 SDAM 个体样本中，多达 51% 的人也患有失语症。

IN THE MOMENT: The author enjoying the passing sensation of an *ashi-yu*, or “foot bath,” at the foot of Sakurajima, an active volcano in southern Japan whose name means “Cherry Blossom Island.” Images and sensations from this moment will soon scatter from his mind, like petals on the breeze, but that doesn’t much bother Giancotti. *Photo courtesy of Ayako Itazu.*

当下：作者在樱岛脚下享受着足浴的快感。樱岛是日本南部的一座活火山，其名字的意思是“樱花岛”。这一刻的画面和感觉很快就会从他的脑海中散落，就像微风中的花瓣一样，但这并没有让贾科蒂感到困扰。照片由板津绫子提供。

My own experience is similar. Past episodes of my life—when I can recall them at all—feel distant and non-sensory. SDAM is a new discovery, still unknown to most practicing psychiatrists, so people like me have to rely on self-diagnosis for the time being.

我自己的经历也类似。我生命中过去的片段——当我还能回忆起它们时——感觉遥远且毫无感觉。 SDAM是一个新发现，对于大多数执业精神科医生来说仍然未知，所以像我这样的人暂时只能依靠自我诊断。

But the symptoms described by the researchers match with what I’ve always taken for granted.

但研究人员描述的症状与我一直认为理所当然的情况相符。

I would describe my recollections as summaries of key facts rather than first-person “mind movies.” When asked, out of the blue, about an experience I’ve surely had—say, any childhood birthday party—my mind first responds by drawing a blank.

我会把我的回忆描述为关键事实的总结，而不是第一人称的“心灵电影”。当突然被问及我肯定有过的一次经历时——比如，任何童年的生日聚会——我的大脑首先会出现一片空白。

It feels as if my episodic memories were filed into a “mental cabinet” without an index. Many memories are in there, somewhere, but retrieving them is a daunting task unless I’m provided with very specific prompts. With some groping work of deduction (where did I live at the time?

感觉就像我的情景记忆被归档到一个没有索引的“精神橱柜”中。许多记忆都在那里，某个地方，但检索它们是一项艰巨的任务，除非有非常具体的提示。经过一些摸索的推演（当时我住在哪里？

Who did I hang out with?) I can gather enough hints to bring out some locations and non-visual facts: I had a big party in our countryside garden

我相信一起出去玩？”我可以收集足够的线索来指出一些地点和非视觉事实。当我11或12岁时，我在我们的乡村花园举办了一场大型聚会；有蛋糕；很多孩子到处乱跑……就是这样。

How does all of this affect my life? The surprising answer is that it doesn't, at least not in any debilitating way. To my great relief, people rarely ask me what happened at parties held decades ago.

这一切对我的生活有何影响？令人惊讶的答案是，事实并非如此，至少不是以任何令人衰弱的方式。让我松了口气的是，人们很少问我几十年前举行的聚会上发生了什么。

But even when there is a need to describe scenes or people visually, I usually have enough "verbal facts" and eloquence to give a satisfying answer, without the need to replicate the actual pictures in my head.

但即使需要形象地描述场景或人物时，我通常也有足够的"口头事实"和口才来给出满意的答案，而不需要在脑海中复制真实的画面。

Among researchers, the consensus seems to be that aphantasia doesn't meet the criteria to be called a disability, and that aphantasic individuals, in general, are fully functional and just as successful at living their lives and performing in their careers as the rest of the population. This seems to be further supported by a new paper published by two researchers at Sorbonne University.[4] They presented their participants, including many aphantasics, with a series of tasks involving the comparison of shapes, colors, words, faces, and spatial relations in one's head.

研究人员似乎一致认为，失语症不符合被称为残疾的标准，而且失语症患者一般来说功能齐全，在生活和职业生涯中与其他人一样成功。人口。索邦大学两名研究人员发表的一篇新论文似乎进一步支持了这一点。[4] 他们向参与者（包括许多失语症患者）提出了一系列任务，涉及比较形状、颜色、单词、面孔和头脑中的空间关系。

Aphantasics were as accurate as the other participants in all the tests, although they took longer to solve the imagery-based tasks, presumably because they used different, less-direct strategies to complete them.

在所有测试中，失语者与其他参与者一样准确，尽管他们需要更长的时间来解决基于图像的任务，大概是因为他们使用了不同的、不太直接的策略来完成这些任务。

Yet, some of those who discover they have aphantasia despair at the news. I've seen people make claims like "my whole life was a lie" and "this must be what ruined my marriage." While I'm not quite as pessimistic, I can relate with that minority of fellow aphants.

然而，一些发现自己患有失语症的人对这个消息感到绝望。我见过人们声称"我的一生都是谎言"和"这一定是毁了我婚姻的原因"。虽然我没那么悲观，但我能理解那少数的孤儿同伴。

Sure, aphantasia and SDAM may not be causing major problems in our daily lives, but wouldn't their subtle effects compound over time? And could they not be the cause of many of our other more embarrassing weaknesses and shortcomings?

当然，失语症和 SDAM 可能不会在我们的日常生活中造成重大问题，但它们的微妙影响不会随着时间的推移而复合吗？它们难道不是造成我们许多其他更令人尴尬的弱点和缺点的原因吗？

> *For those equipped with a trusty inner eye, hearing about aphantasia can be a puzzling experience.*
> *对于那些拥有可靠内在之眼的人来说，听到失语症可能是一种令人费解的经历。*

For many of us, the aftermath of learning about one's aphantasia leads to some sort of self-consciousness crisis. Suddenly, your performance in every other aspect of life comes under scrutiny, and blaming your congenital aphantasia for it is almost irresistible.

对于我们许多人来说，了解自己的失语症后会导致某种自我意识危机。突然间，你在生活的各个方面的表现都受到审视，并且几乎无法抗拒地将其归咎于你先天性失语症。

Is drawing without a reference so difficult because of my aphantasia? Could SDAM be why I'm so bad at keeping in touch with people? Would I be less socially awkward without it?

由于我的失语症，在没有参考的情况下绘画会这么困难吗？难道 SDAM 就是我如此不善于与人保持联系的原因吗？如果没有它，我的社交尴尬会不会减轻一些？

Very few of these supposed connections have been tested yet, let alone confirmed by solid scientific studies. Yet almost every aphantasic I've talked to does this.

我交谈过的失语症患者都会这样做。

But everyone seems to focus their self-doubt on whatever they don't like about themselves, scapegoating different shortcomings.

但每个人似乎都把自我怀疑集中在自己不喜欢的地方，把不同的缺点当作替罪羊。

I have learned to embrace the diversity of aphantasia, and I hope to spread the word about it. And so does Junichi Takahashi, the first researcher I talked to about my condition.

我已经学会了拥抱失语症的多样性，我希望传播有关它的信息。我第一个谈论我的病情的研究员高桥纯一（Junichi Takahashi）也是如此。

Takahashi is a psychologist at Fukushima University and was one of the first scientists to pay attention to aphantasia in Japan, where I've lived since 2011. He set up a website with the VVIQ survey, which is what led me to confirm my suspicions of having aphantasia.

高桥是福岛大学的心理学家，也是最早关注日本失语症的科学家之一，我自 2011 年起就住在日本。他建立了一个包含 VVIQ 调查的网站，这让我证实了我的怀疑有失语症。

I got in touch with him directly and began to learn more about the science behind mental visualization and its absence.

我直接与他取得了联系，并开始更多地了解心理可视化背后的科学及其缺失。

Rather than studying aphantasia as a single phenomenon, Takahashi is trying to bring clarity to its diversity. In July 2023, he and several co-authors published a paper examining subtypes of aphantasia.[5] While most previous studies relied solely on the VVIQ questionnaire to identify aphantasic individuals, Takahashi and his team administered a battery of additional psychological question-sets to the same subjects and analyzed their correlations.

高桥并没有将失语症作为一种单一现象来研究，而是试图澄清其多样性。 2023 年 7 月，他和几位合著者发表了一篇研究失语症亚型的论文。 [5] 虽然大多数先前的研究仅依靠 VVIQ 问卷来识别失语症个体，但高桥和他的团队对同一受试者进行了一系列额外的心理问题集并分析了它们的相关性。

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One of these questionnaires probed the vividness of multi-sensory mental imagery, including the sense of hearing, smell, and so on. Can aphantasics mentally replay their parents' voices or the unique taste of cheesecake?

其中一份问卷调查了多感官心理意象的生动性，包括听觉、嗅觉等。失语者能否在脑海中重现父母的声音或芝士蛋糕的独特味道？

Another questionnaire tested the tendency toward verbally oriented (relying more on words to figure out things) or visually oriented (relying more on images) thinking styles. Yet another one was used to detect "face blindness," the inability to recognize faces.

另一份问卷测试了以语言为导向（更多地依靠文字来理解事物）或以视觉为导向（更多地依靠图像）思维方式的倾向。另一种方法用于检测"面部失明"，即无法识别面部。

or instance, many of their aphantasic subjects ion-visual sensations.

他们的统计分析表明，所有这些因素都有些相关，但并不完全相关。例如，许多失语症受试者缺乏所有的“心灵感官”，但有些人确实有能力想象声音、味道或其他非视觉感觉。

The paper also found that face blindness did occur more often among people with aphantasia (40 percent) than in the control group (20 percent), but is far from being a universal aphantasic trait.

该论文还发现，失语症患者（40%）的脸盲症发生率确实高于对照组（20%），但这远不是一种普遍的失语症特征。

But all this talk of questionnaires and self-reports brings us to the age-old question: How do we know that aphantasia really exists, as opposed to being a form of psychological denial or simply a different interpretation of the same inner experience?

但所有这些关于问卷和自我报告的讨论都给我们带来了一个古老的问题：我们如何知道失语症确实存在，而不是一种心理否认的形式或仅仅是对同一内心体验的不同解释？

When aphantasia was first formally proposed, some researchers wondered whether the purported lack of visualization ability might in many cases be, not a congenital trait, but a psychopathological issue, such as neurosis or a defensive response against trauma.

当失语症首次被正式提出时，一些研究人员想知道，所谓的缺乏想象能力在许多情况下是否可能不是先天性特征，而是一种精神病理学问题，例如神经症或针对创伤的防御反应。

A kind of “philosophical language barrier” further complicates the issue: We might be talking about the same thing with different words and, language being the only medium we have to compare inner experiences, we have (or, rather, had) no way of confirming that.

一种“哲学语言障碍”使问题进一步复杂化：我们可能用不同的词语谈论同一件事，并且语言是我们比较内心体验的唯一媒介，我们没有（或者更确切地说，没有）办法证实了这一点。

Even Ludwig Wittgenstein, one of the great philosophers of the 20th century, wondered about this very scenario more than 60 years before aphantasia got its name: If a person claimed they can’t imagine a picture but is still able to draw one, he asked, should we believe that something different is really going on in their head?

就连 20 世纪最伟大的哲学家之一路德维希·维特根斯坦 (Ludwig Wittgenstein) 在失语症得名 60 多年前就对这种情况感到好奇：如果一个人声称自己无法想象一幅画，但仍然能够画出一幅图画，他问道，我们是否应该相信他们的头脑中确实发生了一些不同的事情？

Scientists are now finding ways to answer these questions with hard, objective data.

科学家们现在正在寻找用确凿、客观的数据来回答这些问题的方法。

“Even before aphantasia became a thing, researchers tried separating people with low VVIQ from those with high VVIQ, and found that the performance at certain tasks is different between the two groups,” Takahashi explained to me.

“甚至在失语症成为一种现象之前，研究人员就尝试将 VVIQ 低的人和 VVIQ 高的人分开，结果发现两组之间在某些任务上的表现是不同的，”高桥向我解释道。

“There is also a lot of research showing a good correlation between VVIQ scores and fMRI scans.” The way the questions are posed in the questionnaire seems to work well enough to pick out individuals with demonstrably different visualization abilities.

“还有很多研究表明 VVIQ 评分和功能磁共振成像扫描之间存在良好的相关性。”问卷中提出问题的方式似乎足以挑选出具有明显不同的可视化能力的个体。

Of the groups working on this front, Joel Pearson’s is one of the most active. His team at the University of New South Wales, in Australia, has been researching mental imagery since long before aphantasia became widely known. In 2022, his team even found a measurable physical characteristic of aphantasics.[6] They discovered that, while the pupils of typical people involuntarily contracted when imagining bright shapes, no such response happened to the aphantasic group.

在从事这方面工作的团体中，乔尔·皮尔森的团体是最活跃的团体之一。他在澳大利亚新南威尔士大学的团队早在失语症广为人知之前就一直在研究心理意象。 2022 年，他的团队甚至发现了失语症的可测量的身体特征。 [6] 他们发现，虽然普通人的瞳孔在想象明亮形状时会不自觉地收缩，但在失幻症组中却没有发生这种反应。

In other words, Pearson’s team showed the first physiological difference confirming the reports of people claiming to have aphantasia. It looks like,

[illegible]。至少在大多数情况下，我们的头脑中似乎正在发生一些不同的事情。

> *Aphantasia is turning out to be a little cornucopia of scientific insights.*
> *失语症正在成为科学见解的一个小聚宝盆。*

And some are trying to go even further. That's why I periodically get into the fMRI machine in Dr. Horikawa's lab to get my brain scanned.

有些人正试图走得更远。这就是为什么我定期进入堀川博士实验室的功能磁共振成像仪对我的大脑进行扫描。

A researcher at NTT Communication Science Laboratories in Japan, Tomoyasu Horikawa specializes in using AI to decipher the contents of the human visual cortex. He has recently turned his attention to aphantasia.

Tomoyasu Horikawa 是日本 NTT 通信科学实验室的研究员，专门研究利用人工智能破译人类视觉皮层的内容。他最近把注意力转向了失语症。

I connected with him in April 2023, when Takahashi suggested I join Horikawa's new research project.

我在 2023 年 4 月与他取得了联系，当时高桥建议我加入堀川的新研究项目。

Horikawa is still collecting data from me and several other people, but preliminary, unpublished analysis indeed shows a quantitative difference in brain activity when aphantasic and typical subjects imagine things.

堀川仍在从我和其他几个人那里收集数据，但初步的、未发表的分析确实表明，当失语者和典型的受试者想象事物时，大脑活动存在定量差异。

When measuring the "distinctness" of brain activation patterns—how accurately the same patterns are repeated in a subject's brain when imagining the same object, and how reliably different when imagining different objects—aphantasic subjects seem to score a bit lower.

当测量大脑激活模式的"独特性"时——想象相同物体时，相同模式在受试者大脑中重复的准确程度，以及想象不同物体时不同的可靠程度——失语受试者的得分似乎稍低。

But he says that much more data is necessary to definitely tell. That may turn out to be the best proof of the neural differences between people with and without the condition.

但他表示，还需要更多数据才能确定答案。这可能是患有这种疾病的人和没有患有这种疾病的人之间神经差异的最好证明。

All things considered, learning about my aphantasia made me doubly optimistic, both at the collective and personal levels.

总而言之，了解我的失语症让我在集体和个人层面都更加乐观。

In terms of social impact, aphantasia is turning out to be a little cornucopia of scientific insights. Already scientists are working with aphantasics not only to understand the condition itself, but also to shed light on the intricate workings of the human brain in general.

就社会影响而言，失语症正在成为科学见解的聚宝盆。科学家们已经开始研究失语症，不仅是为了了解这种病症本身，也是为了揭示人类大脑的复杂运作机制。

Rebecca Keogh, a cognitive neuroscientist at Macquarie University, in Australia, for example, has looked into the mechanisms of PTSD by comparing the occurrence of intrusive thoughts between aphantasics and people who can visualize. For Horikawa, aphantasia is a way to isolate the precise neural processes that create mental imagery in the general population.

例如，澳大利亚麦格理大学的认知神经科学家丽贝卡·基奥（Rebecca Keogh）通过比较失语症患者和能够想象的人之间侵入性想法的发生情况，研究了创伤后应激障碍（PTSD）的机制。对于堀川来说，失语症是一种隔离在普通人群中产生心理意象的精确神经过程的方法。

And researchers from the universities of Calgary and Radboud in the Netherlands recently published an article in *Nature Reviews Psychology* arguing for the use of aphantasia to resolve long-running debates about "embodied cognition"—a theory that treats thinking as a process involving mental simulations of one's body and sensations, as opposed to only abstract concepts and symbols.

章，主张利用失语症来解决有关“具身认知”

抽象的概念和符号。

The absence of something—like the lack of “inner senses” in aphantasics—can teach us much about the presence of it. This might be the biggest reason why I participate in these experiments: Understanding aphantasia means learning something more about what it means to be human.

某种事物的缺失——比如失语症患者缺乏“内在感官”——可以让我们了解到很多关于它的存在的信息。这可能是我参与这些实验的最大原因：了解失语症意味着更多地了解人类的意义。

In a sense, discovering aphantasia as a scientific topic is a bit like landing on a beach on an unknown continent. We know it’s new, but we have no idea of its geography and size. The binary division between “aphantasic” and “everyone else” might be a short-lived one.

从某种意义上说，发现失语症作为一个科学主题有点像登陆未知大陆的海滩。我们知道它是新的，但我们不知道它的地理位置和规模。“失语者”和“其他人”之间的二元划分可能是短暂的。

The subtype studies of Takahashi and others may lead to a more detailed map of the myriad ways a lack of visualization manifests in people and how they work around it.

高桥和其他人的亚型研究可能会更详细地描绘出人们缺乏可视化的各种表现方式以及他们如何解决它。

The brain seems to always have more surprises in store for us, more facets and inter-connections where we previously expected simplicity. We now have an even more interesting landscape to explore.

大脑似乎总是为我们准备着更多的惊喜、更多的方面和相互联系，而我们之前期望的简单性。我们现在有一个更有趣的景观可供探索。

> *I would not want to remove the aphantasia even if it were possible.*
> *即使有可能，我也不想消除失语症。*

And as this additional diversity comes into focus, it is easier for us to marvel at the paradox of human cooperation.

随着这种额外的多样性成为焦点，我们更容易对人类合作的悖论感到惊叹。

What would seem like fundamental differences in the way we think—some with pictures, others without—do not lead to fundamental barriers in the way we talk to, connect with, and love each other.

我们的思维方式看似根本的差异——有些有图片，有些没有——并不会导致我们彼此交谈、联系和相爱的方式出现根本障碍。

We are able to form societies and, through struggle and errors, build thriving communities despite these cognitive differences, and maybe because of them.

尽管存在这些认知差异，也许正是因为这些差异，我们仍然能够组建社会，并通过斗争和错误，建立繁荣的社区。

On the personal level, my “self-consciousness crisis” is eclipsed by a more powerful “self-knowledge renaissance.” Learning that I have aphantasia gave me the habit of carefully observing my inner experience.

在个人层面上，我的“自我意识危机”被更强大的“自我认识复兴”所掩盖。得知自己患有失语症后，我养成了仔细观察内心体验的习惯。

It led, among other things, to realizing that I may also have SDAM and mild synesthesia, something that I had never paid any attention to before. It also honed my ability to explain to others what goes on inside me. Armed with these new skills, I can say that I am better at managing myself and at picking the battles that I am best at.

除其他外，它让我意识到我可能还患有 SDAM 和轻度联觉，这是我以前从未关注过的。它还磨练了我向别人解释我内心的能力。有了这些新技能，我可以说我能够更好地管理自己并选择我最擅长的战斗。

I feel like I have gained much and lost nothing.

我觉得我得到了很多，却没有失去什么。

Some people ask me if my aphantasia can be cured. The easy answer is no, because you can’t cure what isn’t a disease, and anyway we don’t know enough about it yet to influence it. The more sincere answer is that I would not want to remove the aphantasia even if it were possible.

我们对它的了解还不够多，无法影响它。更

Temporary visualization tools? Sure. But not permanent changes to my brain. Whatever compounding effects it had on me over the decades, it helped produce the person I am today. I'm glad it did, even counting all the flaws.

临时可视化工具？当然。但我的大脑不会发生永久性的改变。无论几十年来它对我产生了怎样的复合效应，它都帮助造就了今天的我。我很高兴做到了，即使算上所有的缺陷。

The question I started with—what's wrong with me?—was both rhetorical and itself wrong. The better question is one we all ask ourselves at some point: "What makes me who I am?"

我一开始提出的问题——我怎么了？——既是修辞性的，而且本身就是错误的。更好的问题是我们在某个时候都会问自己："是什么让我成为了现在的我？"

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References 参考

1. Zeman, A.Z.J., *et al.* Loss of imagery phenomenology with intact visuo-spatial task performance: A case of "blink imagination." *Neuropsychologia* **48**, 145-155 (2010).

1. Zeman, A.Z.J. 等人。图像现象学的丧失与完整的视觉空间任务表现："眨眼想象力"的案例。神经心理学 48, 145-155 (2010)。

2. Zeman, A., Dewar, M., & Della Sala, S. Lives without imagery—congenital aphantasia. *Cortex* **73**, 378-380 (2015).

2. Zeman, A.、 Dewar, M. 和 Della Sala, S. 没有意象的生活——先天性失语症。皮质 73, 378-380 (2015)。

3. Palombo, D.J., Alain, C., Söderlund, H., Khuu, W., & Levine, B. Severely deficient autobiographical memory (SDAM) in healthy adults: A new mnemonic syndrome. *Neuropsychologia* **72**, 105-118 (2015).

3. Palombo, D.J.、 Alain, C.、 Söderlund, H.、 Khuu, W. 和 Levine, B. 健康成年人自传体记忆严重不足 (SDAM)：一种新的助记综合症。神经心理学 72, 105-118 (2015)。

4. Liu, J. & Bartolomeo, P. Probing the unimaginable: The impact of aphantasia on distinct domains of visual mental imagery and visual perception. *Cortex* **166**, 338-347 (2023).

4. Liu, J. & Bartolomeo, P. 探索难以想象的事物：失语症对视觉心理意象和视觉感知不同领域的影响。皮质 166, 338-347 (2023)。

5. Takahashi, J., *et al.* Diversity of aphantasia revealed by multiple assessments of visual imagery, multisensory imagery, and cognitive style. *Frontiers in Psychology* **14** (2023).

5. Takahashi, J. 等人。通过视觉意象、多感官意象和认知风格的多重评估揭示失语症的多样性。心理学前沿 14 (2023)。

6. Kay, L., Keogh, R., Andrillon, T., & Person, J. The pupillary light response as a physiological index of aphantasia, sensory, and phenomenological imagery strength. *eLife* **11**, e72484 (2022).

6. Kay, L.、 Keogh, R.、 Andrillon, T. 和 Person, J. 瞳孔光反应作为失语症、感觉和现象学意象强度的生理指标。 eLife 11，e72484 (2022)。

Marco Giancotti 马可·吉安科蒂

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Marco Giancotti is a freelance writer, product manager, and aphant living in Japan. He has graduate degrees in astrophysics and aerospace engineering—both of which happen to rely on equations more than on mental pictures.

Marco Giancotti 是一位居住在日本的自由撰稿人、产品经理和孤儿。他拥有天体物理学和航空航天工程的研究生学位——这两个专业恰好更多地依赖于方程而不是心理图像。

He is working on an accessible reframing of key science insights on his website, Plankton Valhalla (which, yes, does contain lots of visualizations). Follow him on Twitter

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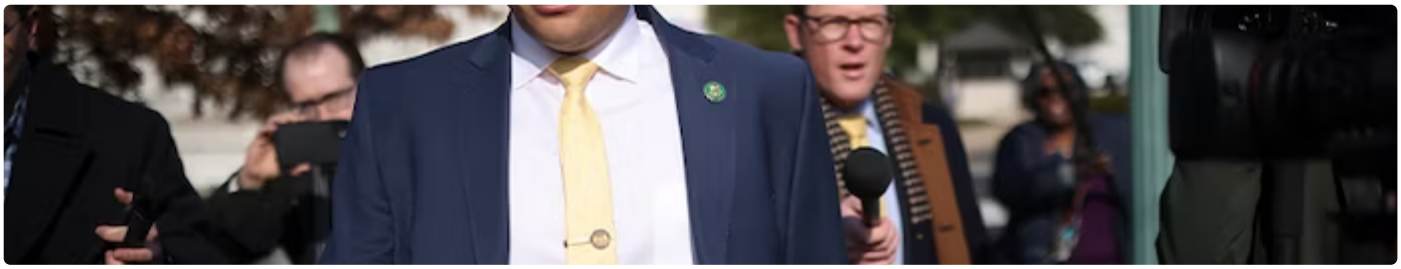

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