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Another perception

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ABSTRACT

Introduction. The links between neurology and the arts are well known, with works of art often being analysed to identify the pathologies depicted. However, it is sometimes artists themselves who experience symptoms, which at least in part serve as a source of inspiration. Diseases affecting perception open the doors to another world, enabling consciousness to be superposed with the world of dreams, and the artist to understand his or her surroundings in a different way. Given that neurology generally studies deficiencies and the negative aspects of disease, the concept of symptoms as creative experience is of great interest.
Methods. We performed a literature search on artists with neurological diseases whose perceptual alterations may have influenced their work.
Results and discussion. Multiple examples were found of artists with migraine, epilepsy, synaesthesia, parasomnia, and autism, whose work features details that probably stem from their altered perception. This article aims not to reduce these artists' creative capacities to a mere perceptual alteration, but to approach their work from the perspective of this possible source of inspiration.

KEYWORDS

Art, creation, neurology, perception

Introduction

If the doors of perception were cleansed, every thing would appear to man as it is, infinite. For man has closed himself up, till he sees all things thro' narrow chinks of his cavern.

These lines by William Blake expose the world of perception, the apprehension of stimuli derived from contact with the real world. They also pose the question of the "veracity" of empirical knowledge. Aldous Huxley describes his experience with mescaline, a psychoactive drug with a strong influence on perception: "to be shaken out of the ruts of ordinary perception, to be shown for a few timeless hours the outer and the inner world, not as they appear to an animal obsessed with survival [...] but as they are apprehended, directly and unconditionally, by Mind at Large." Huxley recounts that under the influence of the drug he perceived the true essence of paintings including *Van Gogh's chair*.[1]

The relationship between disease and art has been acknowledged for centuries, and is typically analysed in the depiction of various health conditions in works of art. Some diseases may cause perceptual alterations, changing the way in which the world is perceived. These phenomena can constitute a positive creative experience. A patient with migraine described distorted houses, twisted streets, crooked doors, irregular rooms, as seen in the set design of Robert Weine's[2] *Das Kabinett des Dr Caligari* (Figure 1A) or Robert Delauney's[3] paintings of the Eiffel Tower (Figure 1B). A resident recounted a

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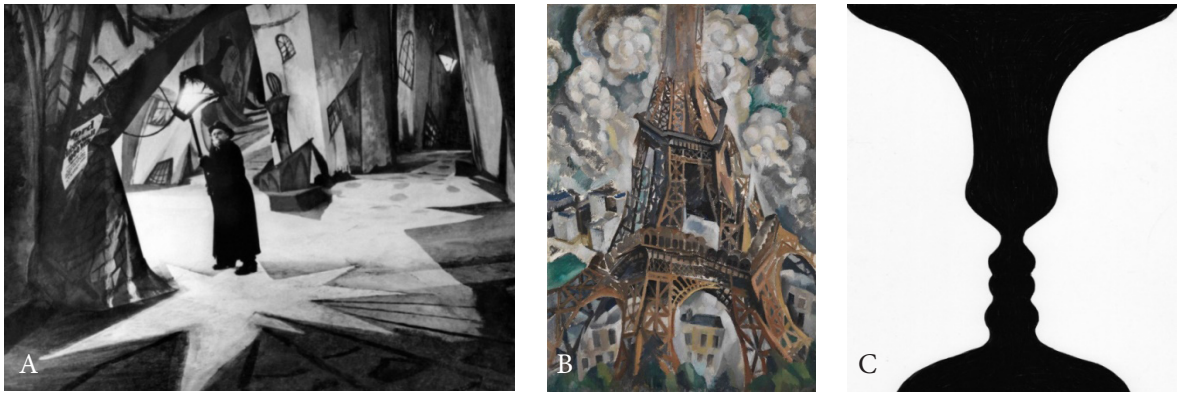

Figure 1. A) A scene from Robert Wiene's *Das Kabinett des Dr Caligari*. B) *La Tour Eiffel* by Robert Delaunay. C) An image by Edgar Rubin, in which we can perceive either two faces or a vase, but cannot easily perceive both simultaneously.

disorder in his perception of his left arm, which seemed to change in size, feeling larger, and radiated a feeling of strangeness. This description graphically represents an alteration in what Henry Head defined as the "body schema."

Perceptual changes open the doors to a different world. They enable the superposition of consciousness and the world of dreams, and allow patients to understand the world in a different way. It is well known that hallucinogens gave rise to an entire movement in literature and the arts, with significant examples including Charlie Parker, William Burroughs, and Aldous Huxley. Neurology often studies the negative: absence, deficiency, lack, loss. However, the concept of symptoms as a creative process is of great interest. In this article, we aim to review the possible influence of perceptual alterations on the work of a selection of artists. To this end, we studied several books on neurology and art, and performed a literature search on the PubMed database. Of all cases identified, we selected those that best represent the most frequent neurological disorders.

Development

Perception

The mechanism of visual perception has classically been thought of as similar to that of a camera obscura, with an inverted image projected onto the retina and processed subsequently. However, perception is now understood to be a creative process. In the early 20th century, the Gestalt school of psychology argued that the brain organises stable sensory patterns to create three-dimensional images from two-dimensional experiences; in other words, the brain creates patterns of similarity and proximity.[4] Another example was proposed by the Danish psychologist Edgar Rubin (Figure 1C): the classic image in which we can perceive either two faces or a vase, but cannot easily perceive both at the same time.

Migraine

Celestial apparitions tell the story of Heaven on Earth. Religious art, and particularly religious literature, provides examples of what William James described as "photism." These descriptions and visions are often accompanied by experiences of revelation, in which bright lights or stars are perceived.

The visions of Hildegard von Bingen (1098-1180) are a special case. Hildegard, a German abbess, philosopher, naturalist, composer, poet, and linguist experienced countless visions throughout her life; her mystical interpretation of these was an inspiration to her work.

> I saw an extremely strong, sparkling, fiery light coming from the open heavens. It pierced my brain, my heart and my breast through and through like a flame which did not burn [...] and suddenly I had an insight into the meaning and interpretation of [the holy books].[5]

Figure 2. Images by Hildegard von Bingen. A) *The redeemer*, *Scivias 2*, vision I. B) *The Trinity*, *Scivias 2*, vision II. C) *Lucifer's fall*, *Scivias 3*, vision I

Her work includes stories and images of great beauty, collected in two handwritten codices, *Scivias* and *Liber divinorum operum*. Her descriptions and drawings allow us an insight into the miraculous character of her visions. Singer[6] performed a detailed study of Hildegard's visions, selecting the phenomena that best characterise her work (Figure 2):

> In all a prominent feature is a point or a group of points of light, which shimmer and move, usually in a wave-like manner, and are most often interpreted as stars or flaming eyes. In quite a number of cases one light, larger than the rest, exhibits a series of concentric circular figures of wavering form; and often definite fortification-figures are described, radiating in some cases from a coloured area....

Hildegard was also far ahead of her time in her musical compositions. While Gregorian chant was sung in a single octave, her music featured two. Although the melody was composed according to the text, it plays as important a role as the lyrical content, which is profoundly spiritual.

Blaise Pascal (1623-1662) was a French mathematician, physicist, and theologist, and is best known for the principle of hydrostatics known as Pascal's law and for the philosophy book *Pensées*. He experienced migraine presenting with visual auras comprising hemianopsia, zig-zag lines, fortification spectrum, and possibly hallucinations. These symptoms profoundly influenced Pascal's philosophical thought; it has even been speculated that they were the cause of his sudden religious conversion when he saw a light one night, interpreting it as a manifestation of the real presence of God. This experience provoked his decision to dedicate the rest of his life to philosophy and religion.[7]

Giorgio de Chirico (1888-1978) was an Italian painter born in Greece, known for founding the *scuola metafisica* art movement. De Chirico suffered with paroxysms of headache, visual symptoms, abdominal pain, and vomiting. Among a wide range of visual symptoms, he often saw the shadow of a cock obscuring his visual field, in an interesting mix of negative (the shadow) and positive images (the silhouette of a cock). These symptoms have been attributed to migraine with visual aura, although we cannot rule out other conditions, such as partial seizures associated with malaria.[8] We should note that

Figure 3. A) Giorgio de Chirico, *Return to the castle*. Musée d'Art Moderne de la Ville de Paris. B) Ignatius Brennan, *Always look on the bright side of life: 1*

de Chirico himself would not categorise his symptoms as physical or medical phenomena; he considered them to be intensely spiritual experiences, referring to them as "spiritual fevers." Many of his paintings include geometric patterns (distortions, metamorphopsia) and dark shapes (scotomas), probably inspired by his visual auras (Figure 3A).

Ignatius Brennan (1949-) is an Irish painter who is greatly affected with migraine auras. Among his symptoms he describes blurred shapes, geometric figures, zig-zag lines, tunnel vision or a kaleidoscope effect, loss of three-dimensional vision, and occasionally a disorder of bodily perception, with a sensation of duplicated limbs. He has creatively incorporated these phenomena into his art. In works such as *Always look on the bright side of life* (Figure 3B), he uses scotomas and zig-zag lines to symbolise the unknown. Brennan has transformed his auras into the artistic language he employs in his paintings.

Sarah Raphael (1960-2001) was an English painter whose prolonged migraines, lasting as long as 18 months, influenced her work in several ways. Firstly, her paintings incorporate various aspects of her visual auras, including scotomas and objects with photopsias and superimposed zig-zag lines (Figure 4). Secondly, she had increased olfactory sensitivity, to the point that certain components of oil paint triggered attacks. For this reason, she began using odourless acrylic paint. In the artist's own words, she developed a "migraine-friendly" painting style.[10]

Epilepsy

Epilepsy, a condition characterised by excessive electrical discharges of groups of neurons, can cause auras with perceptual alterations in addition to the better-known motor symptoms. Artists with the condition have a unique vision of their disease, which is reflected in

Figure 4. A) Sarah Raphael, *Strip page 5*. B) Zig-zag fortification spectrum, illustrated in the Migraine Art competition

innumerable details evoking the experience of seizures and living with epilepsy.

In his book *An anthropologist on Mars*, Oliver Sacks[11] describes the story of Franco Magnani (1934-), who left his home town of Pontito (Italy) at the age of 12. When he was 31, he developed a febrile condition with delirium and epileptic seizures. As he recovered, his personality changed dramatically: Pontito, where he had previously decided never to return, became the central focus of his life. He relived experiences from his childhood, usually involving all five senses: visions of the village, the tolling of the church bells, the smells of the things he saw. His paintings served to alleviate these obsessive reminiscences.[11] Magnani captured scenes of remarkable exactitude; in fact, comparing his paintings with photographs taken at the same location, we can observe that the perspective corresponds to that of a child (Figure 5).

In 1992, Jennifer Hall (1977-), an artist with epilepsy, presented *From the storm* at her gallery with the hope of better understanding herself through the collective voice of other artists with the disease. The artist describes how the imagery she uses comes from the world she experiences during her seizures: "I celebrate other states of consciousness that make up the numerous natures of mentality and the paradoxical state of my biological, electronic, and chemical self." In such pieces as *Transcending* (Figure 6A), Hall depicts the experience of leaving her body through projections, actors, and digital characters.[12] Since that initial collection, one of her sponsors, the Massachusetts General Hospital neurology professor Steven C. Schachter, has financially supported and collected pieces by dozens of artists inspired not only by epileptic symptoms (visual alterations, distortion of the body, etc.), but also by the psychiatric symptoms and psychosocial issues associated with the disease. These

Figure 5. A) Franco Magnani, *Pontito panorama*. B) Photograph

artists' work offers unique insight into the experiences of people with epilepsy (Figure 6B).

In her autobiography *A ray of darkness*, the English artist Margiad Evans (1909-1958) describes in great detail the isolated auras that preceded her first generalised motor seizure. Curiously, she does not find these auras a cause for concern; instead, she valued the fact that they enabled her to simultaneously experience opposing perceptions. These experiences enriched her work with the rhetorical figure of oxymoron (e.g. silent music, loud silence, sunny shadow, etc.). In her own words:

> To see, or to observe one thing, and at that same instant for the soul (it is too instantaneous for the mind) to give birth to its matching half, its sunny shadow. Such swift mental images I had constantly and they made me very happy. For that was why I was born, to be able to do just that and nothing else.[14]

Autism

Andy Warhol (1928-1987) was a hugely popular artist in 1950s New York. Biographies describe him as socially awkward from adolescence; he would avoid personal contact, struggled to consider somebody his friend, and spoke little, almost exclusively about his work. He spoke with a flat voice and appeared unable to correctly process language. He had a strong tendency to create routines and obsessed over details.[15] These descriptions are suggestive of Asperger syndrome, and force us to consider a potential influence over his art. The use of grids with multiple versions of the same image seems to be inspired by "vision in layers and textures"; furthermore, the repetition and the use of everyday objects may have been due to a hyperfocus of perception (Figure 6C). Both phenomena are frequent in people with autism.

Synaesthesia

Synaesthesia is a perceptual phenomenon in which a specific stimulus causes a secondary sensation associated with another sense, such as chords having a colour or words having a taste. It is usually triggered automatically, similarly to a reflex. Synaesthesia may take numerous forms and affect all the senses; however, the perceptive modes and sensations triggered usually remain constant throughout a patient's life. For example, C-sharp might be red or green, but a single synaesthete will always experience it in the same colour. While it is true that an artistic creation with synaesthetic features may represent a metaphor, functional magnetic resonance imaging has demonstrated that synaesthesia, like other conscious sensations, is the result of neuronal activity in specific sensory areas of the cortex.[16] Many artists, including Kandinsky, Hockney, Rowan-Hull, and Mackey, have visually depicted their experience of auditory-visual synaesthesia. Rowan-Hull and Mackay repeatedly listened to pieces of music in order to more accurately recreate their visual experiences on canvas (Figure 7A).

The French composer Messiaen reverses this relationship, with colour bringing music to life. Such compositions as *Chronochromie* and *Couleurs de la cité céleste* include explicit allusions to colour. During a trip to the United States, he visited Bryce Canyon, Utah, which served as inspiration for *Des canyons aux étoiles*, of which he said

Figure 6. A) Jennifer Hall, *Transcending 1*. B) Wolfgang Fehring, *Interruptions*. C) Andy Warhol, *Campbell's soup cans*

"the colour of the ensemble is red, or rather a reddish-orange-violet."[16]

Dreams

Few paintings cause such a sense of strangeness, drama, and distress as the Swiss artist Heinrich Füssli's (1741-1825) *Der Nachtmahr* (The nightmare; Figure 7B). In the centre of the image a sleeping woman lies defenceless, while a demon sits upon her chest, restricting her breathing; in the background a horse, possibly a hallucination, can be seen looking out from behind a black curtain. This painting depicts the experience of hallucination, camouflaged in the background, and the feeling of an intruder causing asphyxia by compressing the chest; both sensations are typical in patients experiencing sleep paralysis. Although his paintings have made him symbolic of the condition, the source of Füssli's inspiration remains unknown. However, given the fact that no known descriptions of sleep paralysis predate his paintings, as well as the clinical accuracy of the portraits and the continued interest in the subject throughout his career, they were probably inspired by personal experience.[17]

Conclusion

Perception as a voluntary action is the means by which we receive and create/interpret our understanding of the world. This creation/interpretation directly influences our actions and sensations. One way of transmitting feelings and emotions is through art, which is directly linked with the perception of artist and "receiver." Perceptual alterations give the subject the feeling of being in a different world, outside the normal physical world. The phenomenon occurs in certain neurological processes, with art acting as a bridge connecting us to these other worlds. These experiences most influence the visual arts, although the effect is also appreciable in other art forms, such as music and literature. Our aim in this article is not to reduce these artists' creative abilities to a mere perceptual alteration, but to approach their work from the perspective of this possible source of inspiration.

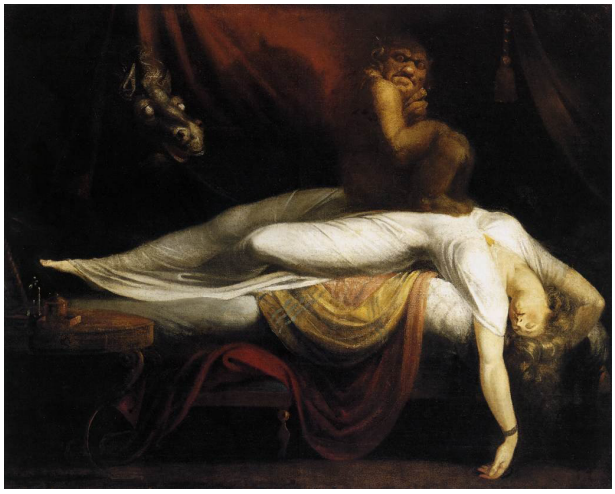

Figure 7. A) Rowan-Hull, performance painting session. B) Füssli, *Der Nachtmahr*

Conflicts of interest

No funding was received for this study. The authors declare that the content of this manuscript has not previously been published in any journal or presented at any meeting or congress.

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