Landscapes in Their Dreams

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"I first met Franco Magnani in the summer of 1988, when the Exploratorium in San Francisco held a symposium and an exhibit on memory. The exhibit included fifty paintings and drawings by him – all of Pontito, the little Tuscan hill town where he was born but had not seen for more than thirty years. Next to them, in astounding apposition were photographs of Pontito taken by the Exploratorium's photographer, Susan Schwartzenberg, form exactly the same viewpoints as Magnani's whenever possible...Magnani was billed as 'A Memory Artist,' and one had only to glance at the exhibit to see that he indeed possessed a prodigious memory – a memory that could seemingly reproduce with almost photographic accuracy every building, every street, every stone of Pontito, far away, close up, from any possible angle. It was as if Magnani held in his head an infinitely detailed three-dimensional model of his village, which he could turn around and examine, or explore mentally, and then reproduce on canvas with total fidelity.

"My first thought when I saw the resemblance between the paintings and the photographs was that here was the rare phenomenon, an eidetic artist: an artist able to hold in memory, for hours or days (perhaps for years), an entire scene that has been glimpsed in a flash; the commander (or slave) of a prodigious native power of imagery and memory. But an eidetic artist would scarcely confine himself to a single theme or subject; on the contrary, he would exploit his memory, or display it, in a huge range of subjects, to show that nothing lay beyond its grasp – whereas Magnani seemingly wanted to concentrate it exclusively upon Pontito..."

-Oliver Sacks, An Anthropologist on Mars, 1996

Quite correct is Sacks in saying that Franco Magnani is, in fact, not an eidetic artist, and for very good reason. Magnani, as Sacks divulges later, actually characteristically displays a controversial syndrome known as Gestaut-Geschwind syndrome (also referred to as Dostoyevsky or Waxman-Geschiwnd Syndrome). As a child this old-world artist was uprooted from his beloved hometown by imminent Nazi incursion. He was forced to leave behind the life that he had dearly come to love and abandon all that was familiar, normal and right to him. This would later play a major role not only in his syndrome's disposition, but his life and the personal philosophy by which he would live the rest of his life.

Gestaut-Geschwind Syndrome is a characteristic personality syndrome that is particularly associated with left-hemisphere Temporal Lobe Epilepsy (TLE). It is important, before anything else, to understand Gestaut-Geschwind Syndrome does not always or even often accompany TLE, and many patients who present focal epilepsy are completely devoid of every symptom which accompanies this personality syndrome.[1] However, exact statistics as to the occurrence of Gestaut-Geschwind Syndrome amongst TLE patients are not available, as the exact details and existence of Gestaut-Geschwind Syndrome is still a topic of hot debate. Nonetheless, there is a specific set of symptoms often associated with Gestaut-Geschwind Syndrome such as circumstantiality (excessive verbal output), hypergraphia, altered sexuality (often expressed as hypo sexuality), an intensified mental life (deepened cognitive and emotional responses), hyper religiosity and/or hyper-morality or moral ideas.[2] In many cases, patients with Gestaut-Geschwind Syndrome only display a small number of these symptoms, which is a primary reason many neurologists argue against the existence of this syndrome. For example, Magnani only displays intensified mental responses. His cognitive representation of Pontito is not only uniquely vivid, but its infinitesimal details, down to exact minutiae of specific stones used to build the towns beloved church, are so exact that when compared to photos taken from the same perspective Magnani's works of art are often times indiscernible from the reality of Pontito.

TLE as its own disorder is still in the infancy of research, but it is known to manifest in two different expressions: Mesial Temporal Lobe Epilepsy (MTLE) and Lateral Temporal Lobe Epilepsy (LTLE). A link between ferbile seizures (those coinciding with episodes of fever in young children) and subsequent MTLE has been suggested, but given the nature of such a cause further examination is difficult, and an exact role remains unclear.[3] Some studies have suggested abnormalities in the hippocampus may contribute to status

epilepticus.[1] Such findings support the theory that prolonged seizures damage the brain, resulting in the death of important brain cell structures such as the neuronal dendrite (the conductile regions which propagate the electrical impulses that allow neurons to communicate with one another). MTLE can be hereditary, but is more often related to brain tumors, spinal meningitis, encephalitis, head injury or blood vessel malformations.[4]

LTLE is less common, but more likely to be hereditary, such as in Autosomal Dominant Lateral Lobe Epilepsy, which is generally accompanied by auditory or visual features,[5] but can also be associated with tumors, trauma, encephalitis, meningitis, and vascular or congenial brain malformations.[6] Most often, the cause of any TLE cannot be discerned with any significant degree of certainty.[5]

Given the many uncertainties surrounding the more "tangible" or "observable" elements which construct Gestaut-Geschwind, it's no surprise that exact causes of the syndrome are unknown. These complications also contribute to the general controversy surrounding the existence of this disorder. It is hypothesized, however, that during the seizures common in TLE the emotional centers of the brain (such as the amygdale and ventromedial hypothalamus) and memory centers (such as the hippocampus and parahippocampal and rinal cortices) are over stimulated, essentially purging what can be considered random information.[2]

A study that partially investigated the bilateral hippocampal atrophy (BHA) theory of Gestaut-Geschwind Syndrome has recently offered experimental evidence for its existence. This joint study, headed by L. Tebartz van Elst and funded by the Institute of Neurology in London and the Department of Psychiatry and the Albert-Ludwigs-Universität in Freiburg, Germany specifically sought to examine if "particular bilateral hippocampal atrophy is associated with various psychiatric disorders,"[1] namely those of affect (such as Gestaut-Geschwind Syndrome), depression and schizophrenia. Bilateral hippocampal volume loss has been correlated with different psychiatric disorders such as major depressive disorder, post-traumatic stress disorder (PTSD) and schizophrenia. Similar amygdale volume abnormalities have been observed in schizophrenia and TLE patients.[1] The team hypothesized that a correlation would be found between such atrophies and an increased rate of psychopathology in the sample population. Furthermore, it was hypothesized that TLE patients with very severe hippocampal and amygdalar loss (operationally defined as three or more standard deviations away from the mean) would exhibit Gestaut-Geschwind Syndrome at a greater rate than those with average volume (operationally defined as less than half a standard deviation away from the mean).

The many minutiae of this study's methods are largely irrelevant for the discussion at hand; it his, however, important to note that the patients were exposed to rigorous qualification criteria at several points throughout the study. After the initial disqualification period researchers we able to identify 33 patients with BHA as well as 34 control patients with TLE who did not exhibit severe volume loss. After this patient pool was acquired, participants were matched on basis of age, gender, duration of epilepsy, frequency of seizures, incidence of ferbile convulsions, encephalitis, head trauma, status epilepticus and intelligence. Dozens of other measures were taken throughout the course of this study to ensure the utmost accuracy during assessment (see van Elst, et al 2008, for a detailed discussion), and the neuroscientific rigor was outstanding.

The final data presented no correlation between BHA and disorders such as depression and PTSD. However, significant correlation between hippocampal volume on both sides and left amygdale were found. Furthermore, there were undeniable and significant differences in terms of an increased prevalence of hypergraphia and hypo sexuality in the patient group. This suggests that BHA has a may play a role in the occurrence of Gestaut-Geschwind, and begins to shed light on a physiological explanation of the mysterious syndrome.

Patients who primarily express symptoms similar to Magnani's (the most widely researched group) generally report a constant theme throughout their hallucinations – in this instance, it is quite important to note that Gestaut-Geschwind Syndrome can be seen in both inter-ictal (between seizures) and ictal (during seizures) states.

In Sacks' account, Magnani most often found himself experiencing his visions of Pontito when in a calm and relaxed state, such as experiencing them with friends. These vivid, inter-ictal hallucinations would settle upon him and cause no other discernable disturbances. On at least one occasion whilst visiting Magnani, Sacks was privy to one of these episodes during which he would reportedly cease his line of conversation and simply lean forward, gazing into a nothingness, periodically turning his head from one side to the next, as if trying to orient himself in his hallucinations. Magnani later explained that by re-orienting himself in real space he could quite accurately view his beloved Pontito as though it actually surrounded him, which, for all intents and purposes, in Magnani's reality it certainly did.

Yet, the question still remains, why would the brain purge the

same information time after time? More recent investigations into this particular oddity suggest that while there are repetitive or reiterative elements prevalent throughout Gestaut-Geschwind patient's visions there are always elements of a fantastic or dreamlike state as well.[7] Another patient, unrelated to Fredo Magnani, explained that she would always see "a sudden vision of London in ruins, herself the sole spectator in this scene of desolation."[8] Magnani himself was acutely aware that his visions, as well as the resulting paintings, were habitually devoid of people, and possessed a post nuclear quality and an air of deeper, more spiritual stillness, despite the fact that every vision, every memory that came to his mind's eyes was keenly attached to an emotional reflection that was connected with a personal interaction with a close friend or relative.[9]

The single most widely researched Gestaut-Geschwind patient is Kumagasu Minakata, a Japanese genius devoted to natural history and folklore famous for his immense range of works. MRI scans of Minakata's post-mortem brain found evidence of right hippocampal atrophy, which correlated with his history of TLE. Many features of Gestaut-Geschwind were identified in a detailed study of his diaries, including a tremendous number of articles, a tendency to write in miniscule characters in compact space (hypergraphia), a lack of interest in sex (hypo sexuality), peculiar ethical concerns, a proclivity to become angry on slight provocation and a notably extraordinary interest in religious matters.[10] While Minakata himself did not express the vivid hallucinations so common to many Gestaut-Geschwind patients, he did fit many of the other criteria.

Most of the research done on this particular syndrome has been aimed at verifying or denying its existence, which, unfortunately for many Gestaut-Geschwind patients, is largely inapplicable in helping "control" or "treat" these patients. However, such a statement makes the gross assumption that these patients feel that help is necessary – Minakata lived a long, productive life in lieu of (or perhaps due to) his Gestaut-Geschwind diagnosis. Likewise, Magnani has admitted on many occasions that he would be lost without his Pontito – in fact, early in his life, before experiencing hallucinations Magnani spent most of his days yearning to return to Pontito, but was terrified at such a prospect. After finally returning late in life, Magnani, after a series of traumatic events related to his return, eventually found himself growing fonder of his beloved hometown, despite living across the ocean.

For individuals unacquainted with Gestaut-Geschwind Syndrome, the disposition may seem debilitating. However, as Sacks concluded his account of his friendship with Fredo Magnani it becomes quite evidence that his may not be the case:

"Franco feels he has twenty, thirty years of work still ahead of him, for the thousand-odd paintings he has done since 1970 convey only a small part of the reality he seeks to portray. He has to have paintings, or simulations, of every detail, from every viewpoint – from the village in the distance, as one drives up to it from Pistoia, to the finest details of the lichened stones in the church. He envisions the building of a museum overlooking the town, which will house a vast archive of Pontito, his Pontito – the thousands of paintings he has made, and the thousands more he still intends to make. It will be the culmination of his life's work, and the redemption of his promise to his mother: 'I shall create it again for you.'"

References

[1] van Elst, T., E. Krishnamoorthy, D. Bäumer, C. Selai, A. von Gunted, N. Gene-Cos, et al. "Psycholopathological profile in patients with severe bilateral hippocampal atrophy and temporal lobe epilepsy: evidence in support of the Geschwind Syndrome?" Epilepsy & Behavior 4 (2008)

[2] Blumer, D. "Evidence supporting the temporal lobe epilepsy personality syndrome" Neurology 53.3 supplement 2 (1999) s9-12

[3] Shinnar, S., D. Hesdorffer, D. Nordli, et al. "Phenomenology of prolonged febrile seizures: results of the FEBSTAT study." Neurology 71.3 (2008)

[4] Fotheringham, J., D. Donate, N. Akhyani, et al. "Association of human herpesvirus-6B with mesial temporal lobe epilepsy" PLoS Med 4.5 (2007)

[5] Cohen-Gadol, A., C. Bradley, A. Williamson "Normal magnetic resonance imaging and medial temporal lobe epilepsy; the clinical syndrome of paradoxical temporal lobe epilepsy" Neurosurgeury 102.5 (2005) 902-909

[6] Sankar, R., M. Rho "Do seizures affect the developing brain? Lessons from the Laboratory" Child Neurology 22.5 (2007)

[7] Rosenfield, I. The Invention of Memory: A New View of the Brain. Basic Books (1988)

[8] Penfield, W. Mystery of the Mind: A Critical Study of Consciousness and the Human Brain. Princeton University Press (1978)

[9] Sacks, O. An Anthropologist on Mars. Vintage Books (1996) 153-187

[10] Murai, T., T. Hanakawa, A. Sengoku, T. Ban, Y. Yoneda, H. Fujita, N. Fujita "Temporal lobe epilepsy in a genius of natural history: MRI volumetric study of postmortem brain" Neurology 50.5 (1998)