

# NEUROPSYCHOLOGICAL ASPECTS OF ARTISTIC CREATIVITY

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## SUMMARY

*Most traditional neuropsychological work concerns aspects of cognition in the most ordinary sense: how the average person perceives and represents the world, and how she acts in response to what is perceived or felt. The extraordinary perception and action of artists has been a subject of fascination for some neuropsychologists at least since Alajouanine, but little systematic work has been done recently. The present study attempts a review of the problem based on a number of published cases of famous artists, including especially painters and poets. The basis for interpretation is one of the most recurrent problems in neuropsychology, the asymmetry of the cerebral hemispheres. There have been many clinical observations that a right-hemisphere lesion is very disruptive of creative work in general; it is less well known, but has been documented, that left-hemisphere lesions can seem to actually liberate artistic potential. The present study re-examines the patients described by Alajouanine and Luria et al., then takes up a series of other documented cases: the famous novelist Dostoevsky, who suffered from epilepsy; the painters Vrubel, Munk, and Zhukovsky, and finally Alexander Pushkin, who liked to draw profiles of various people, including himself, and whose mental problems are well documented.*

## INTRODUCTION

Since the mid-20th century, considerable attention has been given to the symptoms exhibited by artists who have suffered a cerebro-vascular accident (CVA). One of the more interesting observations emerging from this research is that left hemisphere lesions do not reduce creative abilities (which are known to be adversely affected when the right hemisphere is damaged), but can even increase them. One of the pioneers in this work was Alajouanine

(1948), who in a famous study on "Aphasia and realization of creative abilities" described the cases of three outstanding artists (a poet, a musician, and a painter) who suffered from aphasia caused by LH damage. This was the first published work to pose the basic question: how does the inhibition of LH activity affect creative work in literature, music, and drawing? Comparing the works by his three famous patients before and after the CVA, Alajouanine provided a detailed case study, which is still worth reading.

The case of Charles Baudelaire, an outstanding French poet of the 19th century (1821-1876), is among these cases. When he was in his prime, Baudelaire had a severe vascular lesion of the left hemisphere, which induced aphasia. As a result, he was able to utter only one short phrase – the French curse *Cré nom!* (roughly equivalent to the English "Goddamit!"). He used this highly emotive, grammatically self-contained utterance (these features being characteristic of independent RH activity) to represent a variety of mental states, with one leading word changing its meaning.

At the age of 57 the famous musician, Maurice Ravel, suffered a more complicated case of aphasia (Wernicke's aphasia caused by injury to the posterior lobe of the left hemisphere, first temporal convolution). In this case the ability to understand speech, to read, and to write was affected; nonsense words (neologisms, verbal paraphasias) would be produced when he attempted to speak fluently. He could not read musical notation, nor could he use it to write down his compositions. He did not recover his ability to play the piano, either. At the same time, he could remember his own compositions perfectly, as well as the works of other composers; his musical thinking, emotional reactions and sense of beauty had not been affected. He was able to critically assess the music he was listening to, picking out rhythmic faults and false notes, and to describe the pleasure he had from the music he had heard.

Given the left hemisphere damage, Ravel could not cope with one of the peculiarities of the creative process in musical composition, the necessity to use symbolic signs, i.e. notes, to represent music in a manner that can be conveyed. However, the creative capacity itself did not seem to have been diminished: Ravel continued to show great talent as a composer, though he was not able to play or conduct. The fact that the talent remained intact reminds one strikingly of John Milton, who completed his wonderful poetic work, which he was not able to read, or the deafness of Ludwig van Beethoven, who kept on working over his compositions without any hope of ever actually hearing them. According to Beethoven's biographer, Jan Ehrenwald, Beethoven was thought by many to be functionally illiterate: he could not add up a column of figures or remember simple facts. In Ehrenwald's opinion, "Beethoven's genius was presided over by the preponderant right hemisphere, while his short-comings in the three R's were due to the left side of his brain lagging behind the right side in his intellectual functions... Paradoxically, this state of affairs might have earned one of the greatest minds of his century a disconcertingly low IQ" (Ornstein, 1997).

Somewhat more optimistic conclusions have been reached in other case studies. A patient suffering from speech disorders induced by left hemisphere damage was able to conduct an orchestra, to sing steadily holding the rhythm and keeping in tune with the melody, produce correct judgments on the way the music was performed, and remember notes (Head & Creachly, 1926; Pachalska, 2003). Luria, Tsvetkova and Futer (1968) described the case of the composer V. Shebalin, who suffered a left cerebral hemorrhage that resulted in right hemiparesis and Wernicke's (sensory) aphasia, i.e., the same as Ravel's. Later, speech functions were partly recovered: he could express himself in short phrases. He could understand the meaning of words only when he had a picture in front of him. But he could not recover his ability to write. Composing vocal music was difficult for him, because the sound of speech is one of the main components of such compositions. At the same time he was meticulous in writing down music, and demonstrated a perfect ability to create musical compositions. In spite of his severe aphasia, Shebalin continued composing music, and created a series of new works. Dmitrii Shostakovich highly appreciated Shebalin's Fifth Symphony as "a brilliant work of art, emotionally intense, optimistic and full of life."

Having such case studies at hand, it is perhaps easier to accept more controversial hypotheses advanced in famous historic cases, such as the theory of Mozart's death put forward by an American scientist, Michael Dreik, a neurologist at the University Hospital in Columbus, Ohio. Using the latest research techniques he found a crack in the left temporal zone in a skull purported to be that of Mozart. During the composer's lifetime it had only partially knitted. Dreik suggests that Mozart could have suffered a TBI when he struck his head against something hard and heavy, and the resulting hematoma applied pressure on the left hemisphere. Nevertheless, not only did he survive, but in 1791, i.e. after the alleged accident, he created his greatest opera, "The Magic Flute." However, in the letters of his relatives we read that Mozart could not dress himself: his right hand was motionless, and he needed help. In the doctors' notes Dreik came across, there was a record of some "deposits" in the brain, which in the medical terminology of the 18th century may have referred to what we now call a hematoma or abscess. But when Mozart contracted an infectious disease, the doctors recommended the most popular 18th century cure-all: bloodletting. The sudden drop in arterial pressure may have caused a CVA: the difference in the pressure inside and outside the hematoma could have resulted in a hemorrhage. Thus the "Requiem" was not finished.

An observation by Alajouanine (1948) concerning an anonymous painter, a typical representative of the modern French school of painting (though his identity can be deduced, we avoid mentioning his name here for ethical reasons), is of special interest. His works were distinguished by ingenious conception, flawless painterly technique and unique character. He was not only a painter, but also a poet and a lover of symphonic music. Unlike other LHD

cases, his illness did not result in right hemiparesis. Moreover, despite some verbal dysfunction, he was able to understand speech quite well, grasping the main idea of the conversation. His high emotional instability had been aggravated by his disease: he became easily agitated, sullen and withdrawn, characteristics to which he had always been inclined. Nevertheless, he kept all his creative abilities. What is more, his creations became even more expressive and poignant. His memory, creative ingenuity and individuality, and his sense of beauty had not been impaired. Any critic could recognize any of his works by the master's hand. A careful analysis revealed that he had become more precise in his choice of artistic form and expressive means, as well as in his use of colors, despite the verbal deterioration. Thus not only did the left hemisphere verbal dysfunction fail to diminish his creative thinking, the manner and rhythm of his painting, but quite the opposite: it even enhanced the expressiveness of this painter's works. At the same time, when he was praised, he used to say:

*"I have two people living inside me - the one who paints is normal, while he is working, and the other, who is lost in the darkness, who hasn't managed to withstand life ... I can hardly put in words what I think ... Inside me there is the one who grasps the reality, the life; the other one has lost what pertains to abstract thinking. When I'm painting, I'm out of my true life; my vision of things is even sharper than before; I learn everything anew; I am whole. I even don't take any notice of my right hand, which seems so strange to me, when I'm working. These two people, the one knows how to paint with the help of reality, the other is a fool, who cannot manage with words". (Speech discrepancies were not corrected in the quotation.)*

The author who described this case exclaims, "Who can describe this disparity inside him between his verbal abilities and the ability to express himself through his painting better than the painter suffering from speech dysfunction?" (Alajouanine, 1948). In his opinion, in a case where the left hemisphere is damaged while the right one continues to function normally, creative ability remains intact with musicians or painters, who use non-verbal means in their work.

This expressive enhancement of creative abilities against the background of verbal dysfunction is of special interest in the context of the reciprocal (interrelated) relationships between speech and perception, and, in particular, can be used to prove the idea that the process of sense perception is suppressed by verbal functions (Dobrokhotova & Braghina, 1977).

### ***Artistic style: right and left hemispheres of the brain***

There is definite evidence that artistic style perceptibly changes as a result of brain damage. A Bulgarian painter, Z.B., whose case has been extensively described in the literature, endured a left hemisphere hemorrhage that resulted in aphasia, which made his style much more simplistic, close to the art of the Primitivists. He started painting symmetrical pictures in traditional style (Zaimov, Kitov & Kolev, 1969). This change in style made him professionally successful and helped him to attain his fame. This does not mean that the disease brought about an improvement of style, but rather that the artistic tastes of the audience and art critics had been more fully satisfied by his postmorbid works. It can be supposed that before the disease, left hemisphere verbal functions had been hampering the visuo-spatial abilities and artistic skills of the right hemisphere. After the stroke, Z.B.'s "right hemisphere" abilities were "liberated" from the hampering influence of the left hemisphere, which caused the change in style (Brown 1988).

Another, much earlier case of the Spanish painter, Daniel Vierge (Gardner, 1976), should also be briefly mentioned here. He achieved success when he was still very young, and was considered to be an extraordinarily talented artist. In 1882, when he was only 31, he had a left hemisphere hemorrhage that resulted in a severe right-handed paralysis. He was unable to utter anything except for some unintelligible sounds. He found the courage and will to recover, and learned to paint anew with his left hand; and like the painter Z.B. he managed to regain the skill level he had had before the illness.

And, last but not least, we can consider a literary description concerning the creative work and illness of an outstanding 18th- and 19th-century Spanish artist, Francisco Goya (1746-1828), and the flowering of his artistic gift in particular. According to the description, Goya was enduring transient bouts of deafness accompanied by occasional deficits in understanding speech sounds. Such attacks of deafness may have been symptomatic of left hemisphere damage (in particular, of the area connecting the Wernicke's speech area with auditory input). In his novel "Goya, or the vicissitudes of cognition," Leon Feihtvanger gave the following account of these bouts:

*He could see the abbot moving his lips but did not hear a word;(these words) were the last that Goya heard... Then he was swept over by the blood-red wave of rage, which hit him in the ears and head.*

It is interesting to notice that he

*had developed his genuine style in painting only in the last months after the disease ... before that he had been just a house-painter. He saw in man only what was obviously visible, plain and*

*lucid; but what eluded him was that something vague, many-faced and deceptive, something threatening that anyone has in him. It was not until he became forty and a bit that he realized what it was to paint.*

Deafness and depression made him lonely and suspicious. Towards the end of his life his neighbors used to call him "the deaf man in the garden," and his house – "The Villa of the Deaf."

On the other hand, right hemisphere lesions can cause a diminishing of creative abilities and a competitive increase in speech activity. Thus it is well known that as a result of a right hemisphere infarct in the temporal-vertex-occipital area, a famous Swiss painter experienced a rapid increase in writing activity, i.e. hyperverbization (Schnider, Regard, Benson & Landis, 1993). Here is a rough outline of the case:

A few days after his second stroke, the painter asked for paper and a pencil. He was persistently drawing only on the right-hand side of the sheet of paper, making legends in most of his drawings. A part of the extensive hatching on half of his drawings was filled with text (Fig. 1A). The artist explained that he had always wanted to introduce text in his works, but it was only then that it freely "flooded" into the picture. It was not until four weeks had passed that he stopped making legends in his drawings. Compared to his works before the disease, his drawings had become more sketch-like and logically disconnected after the two strokes. However, in the opinion of the critics, the specific character of the lines and compositional structure remained unchanged. At the same time, there is a telling difference in how the painter explores the right and left planes of space: he obviously prefers the right-hand part of the sheet and completely ignores the left-hand plane, or abandons the left part of the picture (Fig. 2). The phenomenon of ignoring the left spatial plane may not show itself in abandoning the left-hand part of the sheet, but can be observed in representing only the left side of the face in the right-hand part of the sheet (Fig. 3). Similar observations have been made by the second author of the present study in previous publications (1999, 2003). The famous Polish painter Habura described there also manifested a marked increase in writing activity. Parts of her drawings were also filled with text (Fig. 1B).

An inability to create symmetrical compositions is another example of the partial loss of visuo-spatial ability in the case of right hemisphere damage. The painter was asked to draw a mirror image of a figure in such a way that in the end the figure looked symmetrical. The painter failed to draw the full face picture or the picture of a face in profile, or geometrical figures of increasing complexity. In most cases he tried copying the figure shown, and only managed to succeed in representing a mirror image of the simplest figure.



Fig. 1. Intervention of writing in a drawing A) by a Swiss painter (Schnider et al., 1993), B) by a Polish painter (Pachalska, 1999, 2003)



Fig. 2. Ignoring the left part of the sheet in a drawing by a Swiss painter (Schnider et al., 1993)

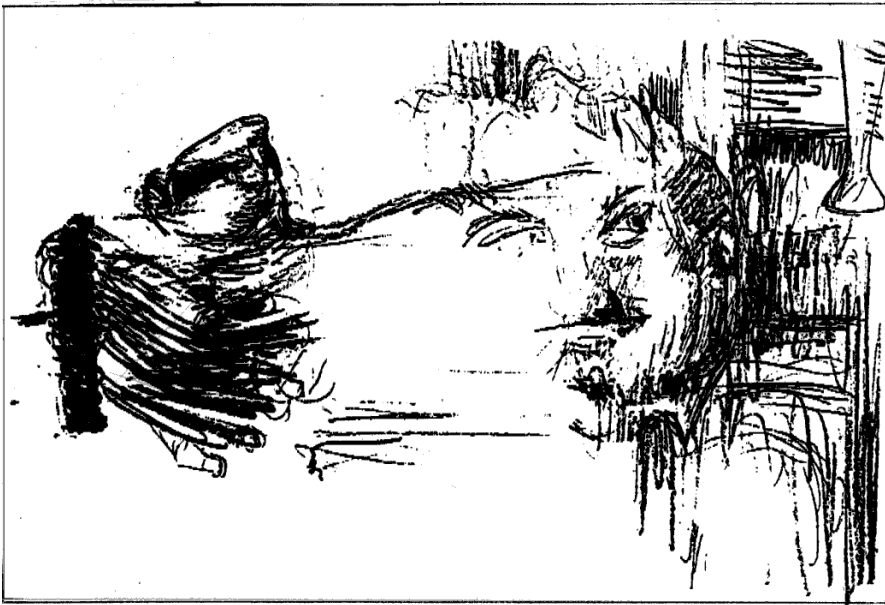


Fig. 3. Ignoring the left side of the face in the right part of the sheet in a drawing by a Swiss painter (Schnider et al., 1993)

## TALENT AND DRAWING

### ***Pictures and calligraphy in Dostoyevsky's and Gogol's manuscripts***

Fyodor Dostoyevsky's (1821-1881) persistent use of drawings, covering the sheets of his manuscripts in abundance, with no obvious relation to the contents, as well as his ardent love for calligraphy, can be of particular interest here (Fig. 4).

Barsht and Torop (1983) counted more than a thousand "calligraphic" notes (calligraphic means handwriting-like, cursive, free-running, and not interrupted or particularly angular), more than five hundred architectural ("Gothic") sketches and more than a hundred face representations in 5500 Dostoyevsky manuscript pages. These graphic representations do not correlate, they co-exist independently from each other:

- calligraphy comprises 61% of the total number of pictures;
- architectural (Gothic) sketches account for 26% (Fig. 5 and 7);
- oak leaves (crucifers), which Barsht considers to be a part of the Gothic representations, make up another 4%;
- pictures of adult and children's faces comprise 7%.

Sometimes facial representations, for example, of Ivan Turghenev, a friend of Dostoyevsky and "the first man of letters" in Russia, create whole compositions (Fig. 6). Thinking of Turghenev's life story, of which he had been a witness, Dostoyevsky drew with rigid and distinct lines a clear profile of







Fig. 6. Drawings of Ivan Turgenev by Dostoyevsky

Turgenev's face with an expression of gloomy pensiveness, or even sullenness. Around it there are four full face sketches drawn with delicate and airy lines. It is supposed that the arrangement of these drawings, which is not exactly vertical, makes the same face when it was young, as it appeared about twenty years earlier (Barsht, 1996). The left-side profile representation and frontal arrangement of the faces is demonstrative of different display models, characteristic of right and left hemisphere activity. Left-side profile representation is likely to be associated with the "absolute" knowledge of the image, and is distinguished by the visually perceptible clearness, almost naturalistic materiality, based on the right hemisphere experience of perception of this particular face (Pachalska et al. 2001). The frontal arrangement of faces, on the contrary, displays a left-hemispheric type of image reconstruction, and is associated with vague and uncertain recollections of a child's face in general. Barsht points out that the contemporary image of a "sullen" Turgenev given in profile was well-known and absolutely clear to Dostoyevsky, but, as for the portrait of Turgenev as a young man, Dostoyevsky took great pains and cannot be said to have succeeded in his recreating the image.

It is interesting to notice that the writer turned to drawing faces most often when he set out to work on a new novel, and we almost never encounter them in his works in the period when he was working as a journalist. Such

comparative analysis brings out the suggestion that the face representations should be related to the early stage of working out the writer's conception, i.e. when his visuo-spatial thinking might be looking for some vague, shapeless and wordless images.

It is also surprising that Gothic pictures and calligraphic notes are found most often in the final period of his work on "The Idiot." It is not a mere coincidence that the writer presents here a certain "philosophy of calligraphy" (see Dostoyevsky, 1989). Dostoyevsky endows Prince Myshkin, who had learned calligraphic handwriting when he was taking treatment for his epilepsy in Switzerland, with love for the very process of writing. According to Barsht (1983, 1996), who studied the calligraphic rough notes, Dostoyevsky put amazing and doubtless autobiographical words in Myshkin's mouth, when the latter was speculating on the nature and essential significance of calligraphy:

*"I think I have a talent for that; that is why I am the calligrapher," said Prince Myshkin. "And here I've written in a different script: it's the large round French script of the last century; some letters were written quite differently; it's the writing of the market-place, the writing of public scribes, faithfully copied from their samples (I had one myself). You will admit that it is not without its good points. Look at these round a's and d's. I have adapted the French characters to Russian lettering, which is very difficult, but it turned out very satisfactorily. ... it is the same as the English lettering, but the thick strokes are a trifle thicker than in the English, with the result that the relationship between light and shade is destroyed. And observe that, too: the oval has been changed, it is a tiny bit rounder and, furthermore, the flourish is allowed, and a flourish is a most dangerous thing! A flourish requires extraordinary taste, but if it is successful, if the right relationship is found, such lettering is quite incomparable, so much so that one could fall in love with it."*

*"Oho!" the general laughed. "So that's the kind of refinements you go in for, is it? Why, my dear fellow, you're not just a calligraphist - you're an artist."*

("The Idiot", translated by David Magarshack, 1955).

The researchers consider these calligraphic exercises, these "tests of pen," as a display of verbal - autobiographical bookish memory, as merging "the word of world" with "the word of self-confession" (Bakhtin, 1979). Such an approach may consider a calligraphically written word as a means of condensation and compression of verbal memory. Such techniques allow us to re-code and compress a long-lasting impression in the form of a laconic label, a single code word, which can be later deciphered and unfolded as far as it

is stored in memory and thus can be called back out of the verbal memory (Slobin, 1976).

This approach was effectively used to explain Dostoyevsky's graphic signs, which was demonstrated by Barsht and Torop (1983). They analyzed a page from a notebook, where in the center there was depicted a portrait of Cervantes with multiple calligraphic notes around it: "Semipola, Semipolatinsk, Petersburg, Literature." The authors think that here one can read the whole story: Dostoyevsky's past - Semipolatinsk, exile; his present and future - Petersburg, his literary activity, the writer's glorious future, his dreams. Thus, all three periods of the writer's life, his whole life was compressed by just three words. The central picture of an outstanding writer, his favorite, Cervantes, may bear the symbolic meaning of a prophet against this autobiographical background. Their lives run parallel to a certain extent. Cervantes and Dostoyevsky both were of noble origin, coming from old but impoverished families, both of them had to do military service, survived slavery or hard labor and exile; they both created their main literary works relatively late.

Let us take another example of such analysis (Barsht, 1993). Working over the character of Svidrigailov Dostoyevsky calligraphically writes down: "Notes on Svidrigailov." Then he repeatedly puts in calligraphic writing: "Napoleon," "Bonaparte." He places the picture of Svidrigailov's face, reminiscent of the portrait of Napoleon III, in the center of the page. The correlation between these names and the picture can be deciphered as follows: Svidrigailov is something of a Russian "Napoleon III," whom Dostoyevsky considered a personification of the ideal French bourgeois. In both cases such an interpretation helps to reconstruct the inner links between various graphic elements in the rough notes.

Barsht sees Dostoyevsky's calligraphy as his attempt to represent the whole series of associations and conception words, as well as his craving to find an absolute expressive form for the idea.

*The writer had an image of some ideal, perfect word which can absolutely exactly express an idea without evoking excessive or scanty associations... The heroes of Dostoyevsky are eagerly searching for "the main word," as was the writer himself. The perfect calligraphic handwriting might have given an idea of how to achieve this aim or draw it as near as possible... What is important for us is the shape of the letters written, a certain imprint of an invariant. But if you take an attempt to read these samples of writing, you will be struck by the solemnity, wholeness and harmony of common, familiar words. Dostoyevsky could have also felt that: an ideal conception should be placed in an ideal form. Genuine, true and important thought is presented in calligraphic writing.*

This extraordinary love for perfect representation of letters, which is characteristic of the fact that consciousness is dominated by symbols, suggests that there may be a certain state of excessively high left hemisphere activation. To verify this suggestion, let us look over the case of Dostoyevsky's disease (see Life Chronicle, 1993). When he was fourteen, Dostoyevsky had an epileptic (grand mal) convulsive seizure. Here is the description of one of them:

*...repeated screaming, loss of consciousness, convulsions of limbs and the face, foaming mouth, wheezing, the pulse is weak, collapsing and jerky. The attack lasted for 15 minutes (apparently accompanied by transient disturbances of consciousness, N.N.). It was followed by complete weakness and the return of consciousness (Chronicle, 1993).*

Dostoyevsky commented that he was able to recover from these "falling sickness" attacks on the spot. At these recovering moments, the face and the eyes, in particular, became contorted to the point of his losing his identity.

*An incredible, horrifying yowl, like nothing on earth, is extorted from the chest; everything human is drowning in this scream; and it is absolutely impossible ... to think that it is the same man who is howling. It may even seem that there is someone else, hiding inside this man, who is yowling ("Idiot").*

Moreover, epilepsy can influence the personality of the patient to a certain extent. Dostoyevsky was egocentric, which was intensified by his disease; "he was annoyingly hypochondriac and suspicious of having all diseases" (as he described himself). Thus his closest friend, Nikolai Strakhov, wrote that "...the further I know him the more I realize how difficult he is to get on with; Fyodor is impossibly conceited and selfish" (Chronicle, 1993). Many of those who knew him well noticed that he was prone to emotional outbursts, spells of sullenness, anger and emotional instability. There was a period when Dostoyevsky

*started avoiding anybody who frequented Belinsky's circle, became withdrawn and impossibly sullen. When he then met Turghenev ... he could not keep control over himself and gave way to his seething indignation, which he had been trying to restrain: he said he was not afraid of anyone of them and time would come when he could drag them all through the mud; they seemed to be talking about Gogol (Memoirs of Dostoyevsky, 1964).*

From time to time he grew painfully suspicious

*Dostoyevsky has become utterly mistrustful after what has been said at the circle meeting about him and his "Poor people." When he came to see us he was already out of himself with rage, picked on the words just to have a chance to give vent to all the bile which was flooding him. "Dostoyevsky has just gone insane!" Nekrasov said in a voice trembling with agitation, "He has driven himself wild" (Panaeva, 1972).*

In all probability there is a certain connection between Dostoyevsky's epilepsy and his literary creativity. This is how Thomas Mann put it:

*There is no doubt that however threatening to Dostoyevsky's spirit was his disease, his genius is utterly dependent on it and has a certain touch of it; there is no doubt that his psychological clairvoyance, his knowledge of a criminal's inner world, his apprehension of what the Apocalypse calls "the abysses of the Devil," and in the first place his ability to arouse the feeling of some obscure guilt, which is sort of a background for his sometimes monstrous characters, – all that virtually goes along with his illness (Mann, 1961).*

Dostoyevsky's illness had its distinctive features, which has made it possible to specify the localization of his seizure focus today, more than a century after his death. Fyodor Dostoyevsky, apart from convulsive seizures, endured transitional states of psychic disorders typical of patients having an epileptic focus in the temporal area. Thus, in his novel "The Idiot" the author describes how the main hero is suddenly captured by forced remembrances, arising as palpably bright visual images:

*I saw your portrait the other day, and it was as if I recognized in the face someone familiar. At once it struck on me that you could have called for me some other day...*

or:

*The prince, who could not have imagined such a possibility even yesterday, then ... was looking and listening with the feeling that he might have anticipated all that a long time ago,*

or:

*he got stuck with his remembrances and his mind to any external*

*object: ... his sordid thought, which he was striving so much to get rid of, was appearing to him again and again should he only cast a glance around him" ("The Idiot").*

This effect of déjà vu is close to "the insights of the past" described by W. Penfield (1966). Transitional bouts characterized by the loss of time and space perception are considered to be typical symptoms of psychotic disorders with such lesion localization:

*He had been tramping around the park for a long time, when he finally "found himself" strolling along one of the alleys... He would not have been able to recall what he had been thinking about during that, at least, hour, he had spent in the park, even if he wished to ... He gave a scrutinizing look around him and it stunned him how could he have been brought there ("The Idiot").*

Besides, a pathologically depressed mood accompanied by distressing gloomy thoughts is very characteristic of epileptic paroxysms of the right temporal lobe:

*He seemed sad and lost in his thoughts as it was, and looked as if there was something worrying him... He was painfully strained and anxious ... A new powerful burst overwhelmed his heart, and the darkness, where his longing soul was suffering in confinement, was instantly lit up by a brilliant flash of light (The Idiot).*

There are many more examples similar to those listed above. The most important thing, however, is that they correspond to the emotional experience of patients with diagnosed brain lesions of the right temporal area (Dobrokhotova & Braghina, 1977). Consequently, the descriptions of specific seizure symptoms and personality changes lead to the conclusion that Dostoyevsky was suffering from a right temporal epilepsy. The period right before the seizure would be characterized by excessive activity of the right hemisphere. After the seizure was over there was a decrease in the activity of the right hemisphere and a reciprocal increase in the activity of the left, which intensifies the ability to combine and deform images stored in the memory. In addition, in order to practice calligraphic handwriting one must be punctilious, overly meticulous and assiduous, i.e. exhibit personality features which are morbidly exaggerated with epileptic patients. Moreover, this is more characteristic of patients having a right hemispheric epilepsy focus (when left hemisphere activation predominates), which is the case of a relatively benign course of the disease.

It is also interesting to notice that in his pictures, showing a repeatedly reproduced stereotype, Dostoyevsky obviously gave preference to extended

proportions, which is demonstrative of an overactivated state of the left hemisphere, the right being functionally suppressed. The representations of Gothic windows, which can be encountered in Dostoyevsky's manuscripts, most likely serve as some sort of subconscious signals of such left hemisphere activity. However, it is possible that the process of alternating hemisphere overactivity, which, in the case of Dostoyevsky, was aggravated by his disease, may be typical of any creative activity.

Dmitrii Likhachyev (1987) gives several logically consistent arguments when explaining Dostoyevsky's "Gothic" windows (Fig. 7). One of them, in particular, is his study of the history of architecture and drawing at the Engineers' College. These subconscious reminiscences of his architecture studies could have had an impact on his search for the proper form and his endeavor for structural organization of his particular "literary work space." There is another justification: the Gothic style was Dostoyevsky's favorite style in architecture, and in this "adoration" there was some element of a religious feeling. Drawing the windows of the Koln Cathedral was something of an act of contrition for Dostoyevsky for his inability to perceive its beauty on the spot.

Finally, Likhachyev makes an attempt to answer the question why there

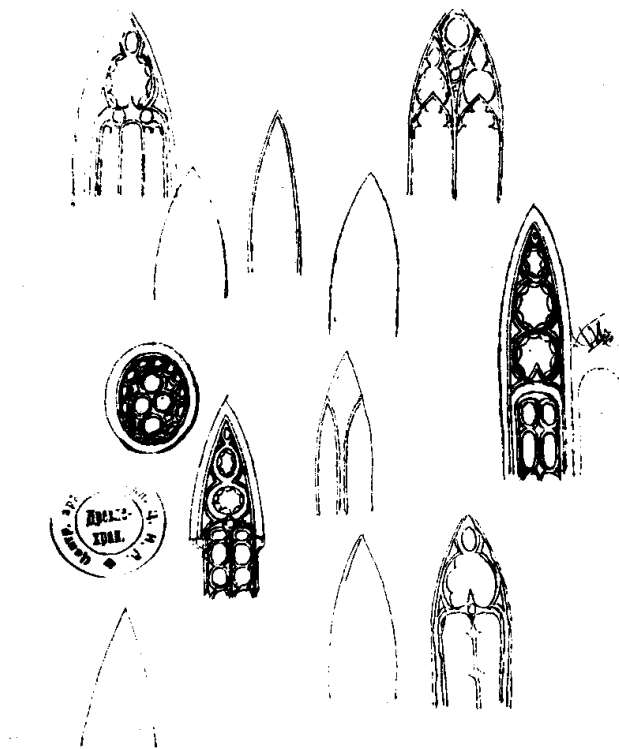


Fig. 7. Samples of architectural (Gothic) sketches by Dostoyevsky



are so many pictures of Gothic windows drawn by Dostoyevsky in his manuscripts. To his mind, the tendency to the vertical line in Gothic style is somehow a replica of the vertical in the writer's world outlook.

*Top and bottom of life, God and Devil, good and evil, his heroes striving to soar upwards..., hell and heaven in his heroes' souls - all that is arranged along the vertical and may remind of the Gothic structure of the world which was depicted by Dostoyevsky (Likhachyev, 1987).*

This explanation seems most significant: what is underlying both Dostoyevsky's thinking and the Gothic vertical organization as its predominant feature is the duality of thinking represented by the opposition "top - bottom," with a tendency upwards. Nikolai Gogol in his article "On architecture today" wrote that architectural, particularly Gothic, images conveyed the idea of structuring upwards, raising and rising upwards: from earth to heaven, from body to soul, from matter to idea. Gogol, like Dostoyevsky, was deeply interested in the "annals" of world architecture. He wrote:

*... the belief, fervent and ardent belief, guided all thoughts, all minds, all deeds to one single craving - the craving of an artist to raise his creation higher and higher up to heaven, which he was so strenuously striving for, which he adored at the only sight of it, and up to which he reverently stretched his praying hand. The building of his creation was soaring up to heaven; narrow windows, pillars, vaults were rising up in an endless line" (cit. Gogol, 1951).*

It is not a mere coincidence that Gogol was no less skilled in calligraphic handwriting either; three days before his death he masterfully wrote a phrase, suddenly cut short (Fig. 8).

Thus both calligraphy and the representations of Gothic architecture are interrelated in the creative works of Gogol and Dostoyevsky. It is quite possible that calligraphy may have some relation to other spatial graphic characteristics. There is a hint of such association in Gogol's calligraphically written phrase, rounded off with a sketch. The profile, reminiscent of Gogol's, patterned to the right, is looking out of the raised bonnet of a carriage, which has something in common with a half-open book (Fig. 8). One spontaneously begins thinking of some word for the legend to the picture; something like "to leave," "to disappear" (Pictorial Souvenirs of Russian Writers, 1988). What acquires significance here is the combination of "an ideal form" of writing (as denoting the peculiarity of the logical left hemisphere) with the profile drawn to the right (which is characteristic of the predominant activity of the left hemisphere). Thus, in calligraphic writing as well as in depicting the elements of



*Как поступить чтобы  
признательно, благодарно и  
вечно помнить в сердцах наших  
помиреннейший урок? И стилизация  
История Велика событий Свангеры*

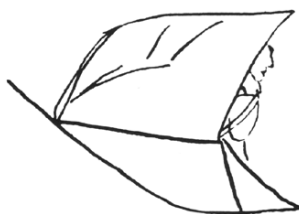


Fig. 8. Sample of calligraphy and drawing by Nikolai Gogol

Gothic architecture, we can observe some tendency to symbolic representation of the ideal form for a thought and notion, to finding the most exact imprint of a word which denotes not so much a visual image as a notion arising as the result of an excessively high left hemisphere activity.

### **Vrubel's unusual space**

The art of Michael Vrubel (1856-1910) has evoked such contradictory responses (from praising to cursing) as no other painter could hardly ever claim. The famous painter Valentine Serov sincerely confessed that he "did not understand the anatomy of Demon." When Vrubel traced the figure of Demon, it was astoundingly perfect and anatomically precise. Looking at the copy Serov asked, "Why is it not the same in the picture?" Vrubel answered, "Because I feel it in a different way."

The story has it that an exhibition in Paris was frequented by a stumpy man who was spending hours in front of Vrubel's paintings. This was Pablo Picasso. By that time Michael Vrubel was already seriously ill, and had been placed in a lunatic asylum for the third time. He wanted "to teach how to see the fantastic in the real world, as Dostoyevsky did. He managed to glimpse something that was hidden from the eyes of most of the people, and went blind, as Rembrandt. It is a well-known fact that at the age of 27, being a stu-

dent of the Academy of Fine Arts, Vrubel started taking lessons at Repin's studio. His picture "The Romans at feast" belongs to that period. According to his words, its subject

*is more than vulgar and trite – two young creatures are winking at each other at the bed of a fat bon vivant fallen asleep from too much wine... Repin saw a detailed water-color version of this subject in the size of the final version, and he liked it" (see Vrubel, 1976).*

The picture became the focus of much attention and interest due to the fact that the painter had to overcome certain difficulties in solving the problem of spatial organization of the picture. It can be well seen that the two figures in the picture are evidently moved to the right and upwards, and to accomplish his work over them the painter had to extend the canvas in the upper right-hand corner. This surprising composition shift can be explained by the preference to the upper right-hand part of space. Here, it is worth recalling that a preference for this segment of the visual field is characteristic of predominant left-hemisphere activity.

In his portraits Vrubel obviously shifted the depicted figure to the right-hand side of the picture space, e.g. his sketch "Mourning at the sepulcher" (1887), or the picture of Demon's head (an illustration to the poem by Michael Lermontov "Demon" 1890-1891). Moreover, in a period of severe psychotic relapse he persistently stuck to the right-hand side of the spatial field, e.g. his portrait of N.I. Zabela-Vrubel (1904). He quite often represented the rightward movement in his pictures (e.g. "The riding horseman," An illustration to the poem by Lermontov "Demon." 1890-1891), as well as profiles turned to the right, e.g. in the picture "Male portrait" (1903-1904). Besides the preference to the right-hand side of the field, in his notebook sketches one can find some rough drawings of self-portraits in which

*the left-hand side - the cheek and nose - is not contoured... what is drawn with clear-cut lines is the pressed thin lips and the right eye, looking upward. The left eyelid is just slightly marked (the detail is not filled in, Vrubel, 1976). In another self-portrait the right side of the face is well-formed, while the left eye is drawn with slightly visible strokes, as if deliberately tentatively (op.cit.). Thus we can see here a willful disregard for the left-hand part of the space caused by an interhemispheric imbalance with an obvious decline in right hemisphere activity (see chapter II). This phenomenon is associated with a collapse of an integral space structure. And it is quite possible that here is the reason why Vrubel so fatally failed to create "a self-sufficient finished harmony of the whole" (Dmitrieva, 1987).*

Finally, Vrubel's paintings are extremely elongated along the vertical, e.g. his picture "Spain" (1894) with proportions 2:88; the portrait of Zabela-Vrubel against the background of birch-trees (1904), proportioned 2:17; or horizontal lines, as in the picture "The fallen Demon" (1902), proportioned 2:86, which is yet another typical spatial characteristic of his manner of painting. Naturally, these elongated proportions could be the result of the painter's search for a solution to his artistic problems. But a willful disregard for the proportions of "the golden section" has too much in common with other peculiarities of spatial organization in Vrubel's pictures, showing the lack of balance in hemisphere activity, with excessive activity of the left hemisphere. Such deviations usually accompany schizophrenic psychosis.

It is hard to believe that his intolerance, gradually growing to almost aggressive criticism towards his friends, an obvious overestimation of his own personality (once he burst out at Repin, "And you, Ilya Yefimovych, can't paint at all"), and later his confused thoughts and acoustic hallucinations (he "heard the voice of Robespierre") could not be biologically conditioned, as pathologically excessive activity of the left hemisphere. But what makes this story a tragedy is the fact that Vrubel's creative work, despite his own insanity, was absolutely sane and normal (though this was not appreciated by the public).

### ***The silent "Cry" by Munk***

Tuberculosis and mental diseases ran in the family of the outstanding Norwegian painter Edward Munk (1863-1944). One of his sisters died in an asylum (Stenersen, 1972). Edward himself often fell ill, suffering from severe relapses of rheumatism. He was bedridden for so much time that he did not even manage to finish school. He was not well educated, and did not possess a great deal of common knowledge. It is amazing that he could see the moon only as a full moon: he painted it so many times, and he always painted it round. He could hardly believe in something that was contrary to his image of the world, and at the same time he believed in spirits, and that there was a time when the Earth had two moons. He was amazingly taciturn and retiring. He lost his temper as soon as he heard something that was not to his liking. He was very suspicious, and was predisposed to see traitors in the people who were close to him. It seemed to him that people around him wanted to do him harm, he saw enemies everywhere, thinking that ill-wishers were chasing him. He was afraid of being hurt. If he caught sight of people speaking in low voices, he would exclaim, "When on earth will this ruffraff stop gossiping about me?" He was so much withdrawn from any contact with others, so hopelessly lost in his own thoughts, that he looked as if he were day-dreaming all the time. He could paint by memory what he had seen only in a flash. He often worked outside, but his eyes were glued to the canvas. He retreated into himself even in the open air.

When he was 45, he had a serious case of a mental disease accompanied by exacerbated delusions of persecution. He could approach and hit strangers who, he thought, had been "backbiting" him. He spent seven months in a private mental hospital; he created many pictures and one absolutely delusional and despairingly gloomy poem supplied with drawings. Nevertheless, the pictures that he painted while in the state of acute psychosis were neither better nor worse than the pictures he had painted before he fell ill, or would paint after he recovered. Later he would say: "As soon as I got down to work, all the evil was coming off me."

Principally, his life, his fate, his disease, some traits of his personality and some of his habits, have surprisingly much in common with Vrubel's story. His first paintings, like Vrubel's, were violently and fiercely attacked by the critics. For instance, his picture "The sick girl" (painted when he was 23) was thought to be "a failure," "a spoiled, partly erased sketch." His cousin, the painter Gustav Ventzel, declared: "You paint like a swine. How on earth did you paint the hands, they look like stumps." Art critics wrote: "It is not even the matter of the personality, but the ravings of the almost insane, the mood which one falls into when being in delirium tremens, or having hallucinations."

He had lived most of his life in mountainous Norway, yet he never painted mountain scenery. Landscapes would have oppressed him. He felt dizzy at the sight of a mountain. He generally had a fear of open space: he could hardly cross the street, he did not like looking around.

"The Cry," the most characteristic of Munk's pictures, is overwhelmed by fear (Fig. 9). A young man is standing on a bridge clasping his head with his hands. He is looking at the viewers with disproportionately large round eyes. His mouth is open as if to stop a cry ready to burst out.

The specific spatial organization of the picture enhances the feeling of despair. Although the figure is depicted full face, there is an impression of the man "moving" towards "the most hopeless dead end" of the picture space – the bottom right-hand corner of the picture. It should be recalled that the perspective lines in a picture are usually directed from the bottom left-hand corner to the top right-hand corner of the picture. It was Wolflin who took notice of the fact that the diagonal picture space from the bottom left to the top right-hand part could be perceived as ascending; while the converse diagonal is taken as descending. In its bottom right-hand part, the picture seems to be closed up, and, consequently, hinders "the movement" of the figure. The man finds himself in a confined space where there is no way out. The blood-red sky and landscape lines are mounting up around him in petrifying curves. Landscape colors and lines are rising up against a weak and supersensitive man. As a matter of fact, this is Munk himself, having felt one evening how the landscape was paralyzing him. Landscape lines and colors had been approaching him to smother him. The fear made him try to cry out, but he could not mutter a sound. He realized that something had happened to him,

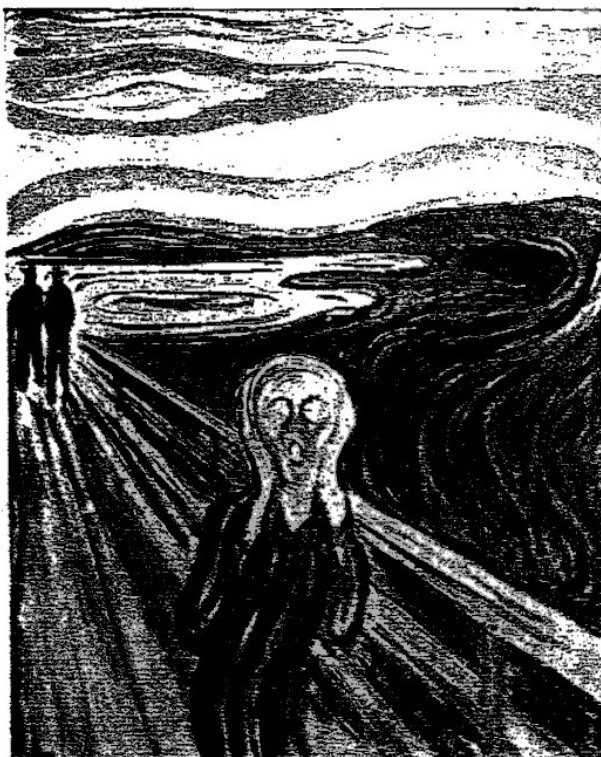


Fig. 9. „The Cry” by Munk

his nerves being overstrained. And still he did not go to see a doctor, considering (as many other painters) that such unusual states of mind could help him paint, while as a result of the course of treatment he would be deprived of his independent, unique nature.

In the lithograph "The Cry" there is Munk's legend in German: "I have felt the cry of nature." Legends were rare in his pictures. But in this case it was very important for him that the viewers understand the picture. We can consider this as his desire to add symbolic signs to the image, i.e. to merge a "left-hemispheric" sign system into the creative process in its final stage.

### ***Zhukovsky's landscape shorthand***

One could hardly draw a distinct line between Vasilii Zhukovsky (1783-1877) the famous Russian poet, and Vasilii Zhukovsky the artist. He started drawing as well as writing verses when he was a child, and had a persistent passion for both these pursuits (Pictorial Souvenirs of Russian Writers, 1988). "The enchanting beauty of his verses," as Alexander Pushkin put it, is more widely known than his drawings; he used to say that "art is poetry taking different forms" (Zhukovsky, 1985). His poetic work was highly appreciated by his contemporaries. Thus Vissarion Belinsky wrote: "Pushkin would be

impossible and could never be appreciated, if it were not for Zhukovsky." Nikolai Gogol said wonderful things about Zhukovsky: "Among our other poets Zhukovsky is like a jeweler in the circle of apprentices, that is, the master completing the finishing of their work...".

There was another gift that Zhukovsky was distinguished for: he undoubtedly had a heart of gold and was the kindest man of letters in Russian literature. To be kind, gentle and responsive is a talent, and Zhukovsky displayed the talent to a full extent (Lotman, 1981).

After his first trip abroad Zhukovsky wrote: "Traveling has made me a painter. I have drawn au trait about 80 scenes, which I have engraved myself au trait as well." Landscape is almost the only subject for his drawings, and here he displayed an accomplished mastery. It is noteworthy that he tried to convey "the human soul in the soul of nature" with the help of a pencil and a pen (Zhukovsky, cit. 1985). Later, when he was traveling, he used to keep a sort of graphic diary, "making sketches of the best sights." Moreover, according to Gogol, "he could draw them in dozens in a flash, and they were precise and perfectly well-done." His hand seemed to be catching up with the eye watching the passing landscape; and the spontaneous, almost automatically done notes add to the peculiar charm of his "landscape shorthand," as it was called by M.Y. Libman.

Zhukovsky's drawings are very likely to be an example of a rare and absolutely harmonious merger of the word and the picture: his diary is illustrated by drawings, while everything that is missing in his drawings is put in words. "What makes the feeling of the great and beautiful so utterly torturous is that you are overwhelmed by the strong desire to form one whole with this beauty and grandeur: thirst - at the sight of the Rhine, aspiration - at the sight of the Alps - all that is music, poetry" (5 September 1832). The unfolding landscape in the picture is developed by the running lines, creating a sort of music of handwriting, an arabesque, turning round its internal swirl (which F. Schlegel considered to be one of the most ancient forms of human fantasy). And in this respect Zhukovsky's drawings have much in common with the melodious harmony of his verse (Pictorial Souvenirs of Russian Writers, 1988).

### ***Pushkin's profiles***

It is interesting to note that in Alexander Pushkin's (1799-1837) drawings we most often encounter profile representations. The great poet most strikingly and eloquently renders this distinctive personal look in his profile drawings, with great mastery. Thus, in Pushkin's profile sketch Evgeny Baratynsky has the look of a thinker. And the most difficult task in portrait painting is to render the look, which is even harder when the person is represented in profile, and even more arduous when graphics are concerned. Moreover, the amazing preference to left-sided profile representation immediately catches the eye. It has been proved that such preference is associated with predom-

inant right hemisphere activity. This gives greater stimulation to get to know this part of Pushkin's creative work better.

Efros (1945), who studied Pushkin's self-portraits, noticed that out of nearly 1500 drawings by Pushkin, portraits and self-portraits make up almost 50%. By now over a hundred people depicted in the drawings have been identified: relatives, friends, Decembrists, women who Pushkin fell in love with (Pictorial Souvenirs of Russian Writers, 1988).

*Hundreds of people's profiles encountered on the margins of Pushkin's manuscripts show his great passion for people. It can be said that he lived a crowded life..." (Efros, 1945).*

His firm hand and visual memory is what strikes the viewer in the sketches of faces. Pushkin could instantly work out an individual and unique "formula of the face" for everyone. Reproducing it time and again (there are, for example, about 30 sketches of Elizaveta Vorontzova), he enriched it with new half-tones.

We know what Pushkin looked like mostly judging by his self-portraits: he made more than fifty sketches of himself (Zyavlovskaya, 1980) (Fig. 10). Such reliable evidence as his deathmask confirms the accuracy of his profile representations. His intently meticulous self-representation can be compared to that of a great painter, and, as for the writing graphics, to one of the greatest poets in the world history of art. This was the way the great Rembrandt painted himself, and the great Charles Baudelaire drew. It is well-known that Pushkin often used drawing as a means of non-verbal communication: finding his friends out, he sketched his self-portrait instead of dropping a line. In the self-portrait of 1827-1830 "the real features of Pushkin's lively face are rendered with firm, laconic and magnificently impetuous strokes, breathing life into the whole picture, which you will not feel in any of the por-

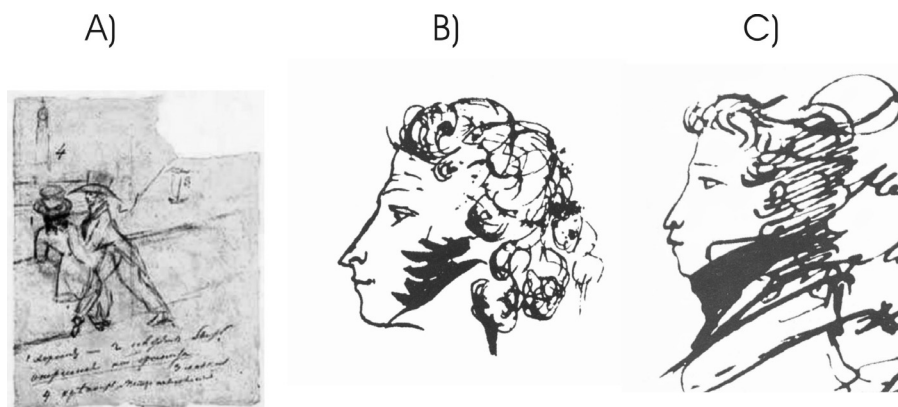


Fig. 10. Alexander Pushkin's self-portraits. A) with Onegin; B) self-portrait from 1829; C) self-portrait from the 1820s



traits of Pushkin painted by professional artists, even in the best of them painted by Tropinin" (Efros, 1945).

According to Zjavlovskaya, Pushkin's drawings were, as a rule, a strict reproduction of something previously seen, and revived the images of those who occupied the poet's thoughts. Time determined the most important and essential, sorting out everything insignificant and irrelevant. The author takes notice of the fact that Pushkin's drawings are laconic, precise, expressive and surprisingly plastic. (Plastic here means, primarily, suggestive of three dimensions by means of two, of convexity, motion, or space.) Profiles are spontaneously drawn in a firm hand. The drawings visually fix the images emerging in the poet's consciousness, sometimes not even shaped yet into words. The drawings are the illustration of the poet's ability to pierce deeply into the heart of things and phenomena, to perceive palpably even a vague allegorical image. It is most likely that in this case the visual image is preceding the verbalization of thought. Even the experts studying Pushkin's creative work find some of his drawings obscure, so remote are they from the verbal image.

We can rightly suppose that intuitive visuospatial thinking (or the ability to create by spontaneous visual images) serves as a source of his creativity. The poet describes the condition of that special spiritual uplift, of ever-growing insight which directly precedes the act of creation (Blagoy, 1982).

*Thoughts flock to me in droves; they dance about and caper;  
Swift rhymes to meet them rush, my fingers restive grow,  
They boldly seek a pen; the pen, a sheet of paper..  
A moment, and the verse will smoothly, freely flow.  
So does a vessel doze till on her deck the dapper,  
Quick-moving hands appear; up, down they creep, and lo!-  
'Tis done: the sails fill out; upon her travels leaving,  
The ship begins to move, the swelling waters cleaving.  
( "Autumn," Pushkin, translated by Irina Zheleznova)*

Art critics are convinced that Pushkin's poetry is distinguished by very precise, almost documentary descriptions. One can easily visualize the landscape described in his poetry. His verses sound as though they were written to evoke a subject for genre and landscape painting, which was to come at one of the exhibitions of "traveling artists" (Peredvizhniki) some forty years later. Stepanov (1959) justly noticed that Pushkin described everything as realistically as it would be later depicted in the pictures by Perov.

A study of the relation between Pushkin's graphics and poetry suggests that his creative work essentially consists of two inseparable parts. As the poet-painter, who has always one in two in the graphic genre, which still remained on the outskirts of his creative work, Pushkin managed to show to the world something theoretically impossible - he managed to imprint (though subconsciously, or it could hardly be done at all) in tangibly concrete graphic

images the most guarded secret of an artist - to imprint, to fix the process, the mechanism of artistic thinking itself (Kertzelli, 1983). These words suggest that Pushkin's genius can be associated with his specific bilinguality - his ability to use simultaneously two languages (discrete and analogue, figurative) - and with his ability "to translate what can not be translated," as Yurii Lotman puts it (see chapter I), when translation from the one language to another and vice versa is still possible though inexact, and when both of the languages are involved in a most creative interaction, fully complementing each other.

It is most likely that poetic graphics goes back to pictograms, which associated a picture integrally with a written word. Efros (1933) thinks that Pushkin's autographs

*appeal mostly to aesthetic feelings ... They do not look like separate letters formally attached to one another to shape a word. They stretch out in one single continuous graphic line constituting sound symbols within itself... The language of strokes is where Pushkin's drawing originates from. This is a bridge connecting his word graphics and image graphics. Strokes and tails are rounded up with an arabesque (this is how some of the autographs are completed); the arabesque is winding up like a bird; the bird lines are entwined with an outline of women's legs, etc. That was a traditional and basic artifice, typical of shorthand technique in the days when it was considered a form of art rather than a speech-recording technique.*

Pushkin's drawings suggest that his graphic images can be associated with the following general principles and tendencies:

- i/ full attention, focus on a ripening thought (not yet put into words), plunging into the heart of his work;
- ii/ emotional reaction accompanied by catharsis, freeing him from the burden of onerous thoughts. Alexander Blok mentioned once that what was important in Pushkin's drawing was "some sort of liberation." Pushkin most often sketched portraits in his manuscripts when he was obsessed by the subject of the picture. It appears as if he were trying to set his consciousness free.
- iii/ parallel thinking resulted in a forbidden subject being forced out into the subconscious. Pushkin's pictures of the Decembrists could be a relevant example. It was forbidden to mention the subject openly. But drawing their profiles helped suppress any thoughts associated with them. However, these thoughts, though suppressed, could have caused a serious depressive feeling. Many times Pushkin drew the gallows with the five handed Decembrists. To secure his friends from official pursuit, Pushkin burnt the manuscript of his "Notebook" (which he had been working on for a year!).

- iv/ testing by a picture how precisely a word expressed the idea of his verse. He demanded exact images. As a poet of reality, Pushkin was able to express any shade of thought or feeling with few words. Gogol was the first who noticed this: "Few words, but they are so precise that they tell everything. In each word there is an abyss of space...". (On the contrary, the romantic poets complained about the impotence of words, sign-symbols. "How can the heart express itself!" asked the famous Russian poet Tyutchev bitterly. "If only the soul could say things without words," said another Russian poet, Fet).

Emotionally, Pushkin was endowed with enormous vital and creative energy. His increased sensitivity was probably the result of an illness. It is known that twice – in 1817 and 1820 – Pushkin fell gravely ill with an unspecified "fever," and the doctors were unable to do anything for his recovery (Zyavlovsky, 1951). But even before the first attacks of the disease, when he was still very young, the idea of suicide occasionally came to him. Pushkin did not keep these thoughts to himself, neither did he tell them openly to others. In the poem "My will. To my friends" (1815), published in the poet's lifetime, you can read the following lines:

*Tomorrow I will want to die...*

Valedictory feelings, put into verse, seem to have lost their power over him; in other words, the feeling of sadness has vanished in the poetic word. In 1819, in the rough notes for a poem addressed to his sister, the poet gave vent to the despondent feelings wholly flooding his heart and soul. In these notes there is a drawing of a pistol. Many times Pushkin challenged or was called out to a duel on various occasions (sometimes very silly ones); he managed to reconcile with many of his opponents, and the pictures of the pistols, which can be seen in abundance in the manuscripts of 1820-1828, reflected the feelings from which the poet could not at once free himself. These pictures helped him discharge his nervousness after a duel was cancelled.

As a matter of fact, these pictures profoundly display the low-spirited state typical of depression. His relatives knew about the blues that overwhelmed him each spring. On the 16th of February 1825 Lev Pushkin wrote to Polina Osipova:

*...I am getting more and more worried about my brother. The spring is coming; this time of the year fosters a strong melancholy in him; I have to admit that I am much concerned about the sequels it could cause.*

Three of six pictures of pistols were drawn in 1828-1829. It seems that with the passing of time Pushkin's striving for duels was getting more and

more persistent. It is quite possible that this urge to duel was the result of his suicidal mentation. Two years before his death he bought a book on the history of duels. In February of 1836, Pushkin got himself into duels three times. Within a year his life was taken by a bullet.

To evaluate the poet's emotional state let us try to analyze independent associations with visual, e.g. color, images. For this purpose the earliest verses, written in 1813-1819, and relatively late ones, dated after 1825, and mainly 1835-1836, were taken for analysis. It turned out that bright color images are more typical for Pushkin's earlier works, and, what is more important, they are very tangible, having positive emotional connotation. The color white, for instance, has the following associations:

*...lustful breathing*  
*White chest fluctuation*  
*By whiteness overlapping snow*  
"To Natalia" (1813).

Or:

*White petticoat...*  
"The Monk" (1813).

Or:

*White day*  
"Autumn morning" (1816).

The associations which appeared in his verses in the last years of his life, preceding his premature death, have acquired a negative coloring:

*To put on a white chasuble*  
"Rodrik" (1835).

Or:

*As pale as dead...*  
*A melancholy moon is floating over the skies*  
(1825)

These examples show that in the early verses, written before the depression started to progress, positively colored associations prevail (white = life, progress, love), while associations touched with sadness are much more typical for the more mature verses (white = death, weakness, fear). There can be more such examples. In his early verses Pushkin associated black with

life, man and love ("black hair," "the curls of black swiftly running to the shoulders, tender voice, loving glance"), while soon before his death he also related black to death ("Black crowd of crows," "in the darkness of the tomb"). What attracts attention is the fact that the color palette was becoming less diverse, with richly colored images vanishing from his verses and colored associations being replaced by achromatic ones (with the accent on the purity of the tone), having a mystic character.

It is interesting to notice that the evolution of these color associations was to a certain extent similar to the change in the color palette in painting. Many great colorists of the 17th to 19th centuries had come to decrease the intensity of their color scheme and polychromy from a more colorful scheme in the beginning of their creative work, limiting themselves to a more reduced and monotonous coloring. This can be noticed with Titian, Rembrandt, Velasquez, the latter being addicted to the extensive use of all the hues of grey. In contrast to his colorful early portraits – "The girl with peaches," "The girl lit by the sun" - Valentine Serov had turned to a more scanty color scheme in his late portraits (Dmitrieva, 1962).

The change of emotionally colored color associations in poetic works has much in common with the cases described above. This proves that there is a relation between a color image and emotional state. It is likely that the bright colorful palette, or intense and tangible color images encountered in the early works of both painters and poets, can be explained by the predominate activity of the right hemisphere. There is a gradual diminishing in the volume of color associations in poetic works, and a decrease in the intensity of the color scheme and polychromy in the works by the great masters (with an obvious preference for grey), which may be associated with the increasing predominance of left hemisphere activity in the creative process in the later periods of their work. An obvious preference for grey under the predominant activity of the left hemisphere can be indirect evidence for this phenomenon (Nikolaenko & Ostrovskaya, 1989).

The process can be partly referred to old age (with the passing of years most people gain a definitely reasonable "left-hemisphere" wisdom), but it can also be the result of the tragic decrease in their creative energy, accompanied by the rapid exhaustion of the resources of the right hemisphere for creative thinking, by their "burning themselves out" by the age of forty. This conclusion, which may seem so simple, can be justified by one more fact: with the passing of years intense creative work in poetry, as a rule, gives way inch by inch to the expanding power of journalistic and prosaic genres.

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