

# **The New Muses: The Poetic Vector of Civilization**

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**Abstract:** This article presents the poetic outside of the traditional domain of poetry: not as inherent in verse, but as active in various spheres of civilization, from technology and science to biological and social processes. Contrary to the widespread view that the progress of civilization is mostly pragmatic, and that it diminishes the role of poetry, the author argues that the course of civilization is defined by the growth of its imaginative and metaphorical patterns. *Technopoeia* is viewed as the development of technical devices that extend the capacities of the human body as metaphors and metonymies of its various organs. *Biopoeia* embraces the diversity of metaphors created by the crossovers and hybridization of various organisms and the poetic uses of the language of genes. *Sociopoeia* demonstrates the growth of metaphorical patterns in contemporary societies, where traditional and static social roles and inherited identities are transformed and intermingled. *Noopoeia*, the poetic potential of scientific thought, is presented in the deeply metaphorical visions of the micro-world, in the concept of quantum entanglement and in fractal theory. Foundational metaphors—such as ‘planet as a living organism’, ‘computer as a brain’, or ‘genes as language’—underpin the conceptual apparatus of contemporary science. Thus, the magical powers of poetry, once glorified in ancient myths like the myth of Orpheus, extend into the imaginative advances made by various branches of civilization.

**Keywords:** poetry, the poetic, metaphor, life, technology, science, society

## I. Progress and Poetry

Are there any definitive vectors in the history of civilization? A number of answers to this question come to mind, some of them more statistically persuasive than others: demographic growth, economic progress, increased labor productivity and social wealth, the spread of the free market, globalization, cosmic expansion, accelerated information flows, the expansion of the noosphere—these are all mutually compatible vectors that make up the coherent picture of historic development. Nevertheless, there is yet another vector that is regularly omitted from that picture—namely, the vector of the expansion of the poetic, of poetization of space, of life, society and technology.

This idea of progress as *poesis* (from the Greek *poiēsis*, ποιήσις, which translates literally as ‘creativity’) might seem, at first, to run against the grain of the other trends just mentioned. *Poesis* is the growth of the poetic in history, mediated by the creative efforts of humanity. This vector might appear counterintuitive: do not the economic, technological and informational progress all lead to a waning of the poetic element, which can but retreat further and further into the golden age of myth, of epics, fairy tales and legends? The poetic worldview is thought to have

prevailed only in the early stages of civilization, later to be superseded by science, technology and the rationalist mindset that would rather investigate and know than be enthralled in poetic visions.

## II. De-poetization

This 'de-poetization' appears to run continuously through human history, intensifying especially in the Industrial age. The nineteenth-century Russian poet Evgeny Baratynsky noted this mournfully as early as 1835, in his poem 'The Last Poet':

The age advances down its iron pathway,  
Hearts bent on lucre, while the common dream  
Attends upon the needful and the useful  
Each hour less embarrassed, more distinct;  
And, in the glare of enlightened knowledge,  
The tender reveries of Poesy are gone.  
It is not her that generations cherish,  
Absorbed in their industrial concerns.

This decline of the poetic was not only sensed by the poets themselves. Karl Marx stressed the same tendency in the language of economics, in his *Grundrisse: Foundations of the Critique of Political Economy* (1857–1858):

is Achilles possible with powder and lead? Or the *Iliad* with the printing press, not to mention the printing machine? Do not the song and the saga and the muse necessarily come to an end with the the printer's bar, hence do not the necessary condition of epic poetry vanish?<sup>1</sup>

In contrast with Marx's optimistic views of progress, Martin Heidegger's reflections were imbued with nostalgia: mass production, he thought, destroys the poetry of singular things, making *poesis* itself a thing of the past. A bowl or a violin are created unhurriedly and authentically, the way a tree grows, too, the way a child is raised. What remains of poetry now is only poetry in the narrow sense—verse, and other islands of the poetic (painting, arts and crafts). These, nevertheless, exist amidst the sea of science, technology and economics. Our contemporary, the composer and art critic Vladimir Martynov, is equally pessimistic about the present and the future of poetry in heralding 'the end of the age of composers' as well as 'the end of the age of literature'.<sup>2</sup> Should we rejoice or lament in

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1 Marx 1993, p.111.

2 Martynov 2008, p.45.

the face of this inexorable decline of poetry? This is open to debate—yet the decline itself is somehow taken for granted, by ‘progressists’ and ‘nostalgists’ alike.

Contrary to the view that soulless technicalism and pragmatism should be the hallmarks of the twenty-first century, my thesis is that this century promises to be a century of poetry—in a much broader sense than our usual conception of what poetry is. Poetry is not about to disappear from the life of humanity; it is being reborn, on the macro scale of this civilization's megatrends.

### III. The New Muses

Ancient Greece knew nine Muses—patronesses of poetry, the arts and sciences: Calliope for epic poetry, Euterpe for lyric poetry, Melpomene for tragedy, Clio for history, Urania for astronomy... The time has come to enlarge this panmuseion with the addition of new Muses: *Anthropopoeia*, *Biopoeia*, *Noopoeia*, *Sociopoeia*, *Technopoeia*... These kinds of creativity do not fit into the conventional scheme of the arts; they broaden the horizons of civilization and its future.

*Poeia* (from the Greek *poiein*, ‘to create, produce, compose’; cf. ‘mythopoeia’) is the poetic principle that manifests itself in a wide variety of activities, including poetry—but also technology, social and scientific practices, and the cultivation of nature. As the second term in compound words, *-poeia* can be attached to roots denoting different areas of human accomplishment, in order to draw attention to their poetic and imaginative potentialities: *technopoeia* (the poetic aspect of technology), *biopoeia* (of living organisms), *sociopoeia* (of society), *noopoeia* (of thought and science), etc.

### IV. Anthropopoeia

First among these new muses is *anthropopoeia*—the creation of humans (from the Greek *ἄνθρωπος*, *anthropos*, ‘human’, and *ποιέω*, *poieo*). Anthropopoeia is the totality of practices aimed at creating and re-creating human beings. The greatest act of anthropopoeia, as described in the Bible, is the creation of humanity ‘in the image and likeness’ of God, which points to the poetic nature of a human being as a metaphor. The human being is a ‘creature’ not in the literal sense (like plants or animals), but figuratively, as she or he stands as an image and likeness of the Creator, as an iconic sign of Divinity. This aesthetic or semiotic construct can help in solving the theological problem of ‘godmanhood’ and of the relationship of the divine and the human. Under this theological assumption, the human being, as a metaphor of God, possesses some of the divine attributes: the ability to think, to create, to name things, and to exercise free will. The relationship between God and man is not logical,

but figurative, based on likeness, or resemblance. The human being should therefore be considered metaphorically—that is, poetically.

In one of his later poems, 'In lieblicher Bläue...' (1822), Friedrich Hölderlin described the essence of *poetry beyond poetry*: 'dichterisch wohnt / Der Mensch auf dieser Erde': 'poetically man dwells upon this earth'. The poetic is not only a property of words and meanings, but of the special way of being inherent to humans. What is this poeticism? It is the human capacity for recreating the world in their own image, and thus for mutual connection between individuals. Hölderlin explained this in a 1799 letter to his brother:

Poetry unites men not, I say, in the manner of play; it unites them, namely, when it is genuine and functions [*wirkt*] genuinely—with all the manifold suffering, happiness, striving, hoping and fearing, with all the opinions and errors, all the virtues and ideas, with everything great and small, that is among them—as a living, thousandfold divided [*gegliedert*] heartfelt [*innig*] whole.<sup>3</sup>

If humanity is first created in the image and likeness of the Creator, later it recreates the surrounding world in its own image and likeness. The advent of the cyborg and the android, of the super-brain and artificial intellect, all created in the image and likeness of the human, is the second act of anthropopoeia. Devices built into the human being, or closely interfacing with the person, will enlarge human memory and perception, multiply productive ability and creatively influence the human environment. This—the self-creation of man as a trans-natural being, absorbing everything created by him as a species—will be the greatest act of anthropopoeia since God created man.

Poetry, thus broadly understood, is not reducible to verse, for it inspires the whole scope of human creativity. Humanity, created as a metaphor, itself continues to create a world of metaphors. Tools of labor, technical inventions, scientific discoveries and works of art are all but ways of creating the world in man's image. Metaphor, as a transfer of meaning by resemblance, as 'one thing standing for another', predominates not only in poetry, but in all human activity. What we find in the products of civilization—in paintings and buildings, in computers and spaceships—is not the presence of man as a natural being, but his infinitely multiple images, symbolic projections, metaphors and metonymies of his abilities and his desires.

*Anthropopoeia* thus becomes *technopoeia*.

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<sup>3</sup> Eldrigde 2014, p.136.

## V. Technopoeia

*Technopoeia* is the poetic principle of technology. Oswald Spengler famously postulated that the essence of technology is identical with the human soul. All the wonders of technology are essentially metaphors of the soul's capacities and its desires—for speed, for flight, for soaring...

The house is a metaphor of the body.  
The hammer is a metaphor of the fist.  
The bowl is a metaphor of the hand.  
Glasses and the microscope are metaphors of the eyes.  
The computer is a metaphor of the brain.

Technical implements are projections of bodily organs: this theory of technology dates back to Ernst Kapp's book *Elements of a Philosophy of Technology: On the Evolutionary History of Culture* (1877).<sup>4</sup> In Russia, the philosophy of organ-projection was developed by Pavel Florensky (1882–1937), who wrote: 'Technology is an imitation of the living body or, more precisely, of the vital body-forming principle; the living body is the prototype of all technology.'<sup>5</sup>

The entirety of technical civilization is a multiplicity of images of the human, with its countenances and reincarnations. Communication technology is the image of the perceptive and thinking person, capable of extending over vast distances her or his capacity to see, to hear and to process information. Transport technologies are an image of men in motion, a hyperbolic enhancement of their ability to run, jump or swim. Manufacturing technology is an image of man's manipulation of objects, which produces tools and consumer goods.

Technology is no less metaphorical and symbolic than poetry, though it embodies the energy of imaginative displacement not in words, but in poetically transformed matter whose every element 'plays' with nature, by overcoming the force of gravity, spatial distance or the limitations of bodily capabilities. Technopoeia—as embodied in aviation, electronics or the Internet—makes it possible to see the invisible, to hear the inaudible, to speak many tongues, and to carry the word from human lips into cosmic distances.

Technopoeia allows us to look at the entire history of technology as a fusion of poetry and utility. Via technology, we act at once poetically, constructing new images of ourselves, and pragmatically, extending our power over the material world. The usefulness of the lever, for instance, is unquestionable, while its poetic aspect resides in the fact that it is a metaphor of the shoulder and the arm, their hyperbole (amplification,

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4 Kapp 2018.

5 Florensky 1999, p.402.

lengthening): 'Already dipped / In oil up to his elbow, /The lever begins /To cry out in a's and o's', wrote Eduard Bagritsky in his 1927 poem, 'Spring'. The same can be said of almost any technical device. It is no accident that folk imagination has been continuously ahead of technical invention, anticipating them and endowing them with poetic meaning: before the airplane, came the flying carpet, together with the 'self-weaving tablecloth' of Russian tales and the invisibility hat (i.e., '3-D disguise', to use the modern term).

It would be useful to distinguish technological *metaphors* (involving the transfer of meaning by similitude) and *metonymies* (transfer by proximity, extension or contiguity). The telephone, in this way, is a metaphor for hearing but a metonymy for the ear—in other words, it functions as an artificial ear attached to the bodily organ and extending its capacity.

## VI. Biopoieia

*Biopoieia* is a set of biotechnologies that transform the living world. Its manifestations are manifold, including the creation of new varieties of organisms and hybrid beings. Life as such bears many characteristics of poetry. It is no coincidence that one of the most influential scientific theories of life is called 'autopoiesis': in the early 1970s, the biologists Humberto Maturana and Francisco Varela employed this term to characterize the self-generation and self-reproduction of living entities. What life and poetry have in common is language, both genetic and verbal. Sign processes evolve on all levels of life, from single cells to complex organisms and ecosystems. Studies in biosemiotics show that genetic language has also its own kinds of synonymy, homonymy and metaphoricity—methods for the construction of poetic images.

One of the most illustrative metaphorical processes in nature is hybridization, which involves the combination of genetic material from different biological species in a single cell. This paves the way for natural genetic engineering, the so-called horizontal transfer: with the aid of special viruses, genes can be transferred between very distant species, even between plants and animals, and new species can arise. On the basis of these transfers, new varieties of cultivated plants are created in the course of artificial breeding; these are, in fact, living and growing metaphors, as some plants acquire the properties of others (in the conventional metaphorical mode of 'starry eyes' or 'rosy cheeks'). Just think of the poetic names of the varieties bred by the American botanist and horticulturist Luther Burbank: quince with the scent of pineapple, dahlias with the scent of magnolia, blue poppy, fragrant dahlia, *tayberry*—a raspberry-blackberry hybrid, and *white blackberry*, a poetic oxymoron. Examples of recent transgenic mixes include a frost-resistant tomato variety with a built-in flounder gene, and drought-resistant corn with a gene borrowed from the scorpion.

The personification of the forces of nature, particularly the endowment of animals with speech (as in fairy tales and fables), is one of the oldest techniques of poetic imagery. Such speech is no longer mere fantasy, and it now enters the practice of another form of poetry—*zoopoeia*. With intermediary languages, real communication between humans and animals (first among them being the chimpanzees) becomes possible. This can lead to new, deep-dialogical relations between species. Nikolai Zabolotsky's poem 'The Triumph of Agriculture' (1931) offers a vision of such a newly-enlightened nature:

Here they teach butterflies to work,  
The garter snake is taught the science  
Of spinning yarn and making mica,  
Of sewing gloves or tailoring pants.  
Armed with an iron microscope,  
the wolf here sings the evening star,  
A workhorse readily engages  
Radish and dill in lengthy conversations.

The poetic device of personification—the spiritualization of nature—thus becomes an experiment in its practical transformation.

Biopoeia, taken in the narrow sense, can include the poetic experiments of the so-called *ars chimaera*, 'chimeric art'. Following the Russian art theorist Dmitry Bulatov, this is 'the purposeful construction of new genetic combinations that do not exist in nature, allowing to obtain organisms with inheritable, predetermined aesthetic properties'.<sup>6</sup> Genetic and biochemical techniques make it possible, for example, to create luminescent plants with radiant letters flashing on their buds, as purely artistic and poetic objects.

## VII. Sociopoeia

*Sociopoeia* is the poetic principle of social life. In traditional societies, individuals coincide with their social ranks and ecological niches. The course of historic development leads towards a progressive dissolution of inherited social rank and of ethnic identities, individuals increasingly adopting the traits of different nations and cultures, and their languages. Books and movies, travels and the study of history and foreign languages are all a way of discovering the other within oneself: a Frenchman can feel like a Japanese; our contemporary can feel like an ancient warrior or a medieval monk... The universal symbolic exchange accelerates with the development of civilization, serving this poetic transference. Unlike the prosaic word, and especially unlike the word of science strictly defined,

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<sup>6</sup> Bulatov 2002. See also: Bulatov 2008.

the poetic word tends towards utmost extension, absorbing the meanings of those other words. This is just what is happening with individuals in the contemporary society.

Today's human beings, contrary to the popular notion of their wholesale pragmatism, are becoming more and more poetic. We do not simply perform the roles assigned to us by society, but instead increasingly overstep and transform them, distancing ourselves inwardly from our direct functions, and perceiving them as metaphors. This playful, theatrical, carnivalesque mode of sociality exemplifies the Shakespearean vision of the world as a 'stage.' Network communities, virtual realities and role-playing games all involve our performing different personae, and forming our 'selves' in the image of not-self or not-quite-self. This turns out to be a powerful factor in the growth of new metaphorical communities—of sociopoetic environment. We break away from our biographical identities, turning them into our avatars, just as a poet would tap into her or his own personality in order to give a voice to the lyric protagonist. Displaced authorship and 'avatarship' is the principle of network sociopoieia.

In the twenty-first century, the person can incorporate, at least potentially, a greater number of different forms of selfhood than people ever did in prior eras. Two thousand years ago, Seneca exclaimed in indignation: 'how revolting is the fickleness of men who lay down every day new foundations of life, and begin to build up fresh hopes even at the brink of the grave... What is baser than getting ready to live when you are already old?'<sup>7</sup> Today, this 'post-retirement' age becomes for many people just such a new beginning: one is still full of energy, but also endowed with a sense of freedom when facing the full palette of possibilities for self-realization. The age past sixty or sixty-five then becomes the most poetic phase of life, comparable in its potential for 'metamorphosis' to childhood and adolescence, when the person's professional identity and social roles have not yet been settled. The old age now becomes a time of life's renewed poetic openness.

Sociopoiesis is the multiplication of identities and 'self-images' of a person in the course of social and professional development. Once chained for life to his or her craft, the individual is now dramatically more mobile. People can change occupations, acquire new skills and refashion themselves in a variety of ways. As Paul Valéry noted, 'a man deprived of the possibility of living many lives besides his own could not live his own life.'<sup>8</sup>

Whereas a person who travels imaginatively through different times and cultures is a *metaphor* of multiplying identities, belonging to multiple

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7 Seneca 1917.

8 Valéry 1954, p.213.

real communities suggests an extended *metonymic* existence. In this trans-ethnic, trans-linguistic, and sometimes trans-gendered individual, the 'direct meaning' of original identity gives way to figurative meanings, including transference by relatedness, contiguity and membership in various communities. Born in one country, educated in another and working in another yet... Such a person is an embodied metonymy.

### VIII. Noopoeia

Followers of Rousseau and Heidegger, or of René Guénon and 'the great tradition', blame science and technology for destroying the charm of the primal poetry and the golden childhood of humanity, when nature was full of animate beings, when a naiad lived in every lake, a dryad in every tree, and the voice of the deity, be it Zeus or Perun, resounded in every thunderbolt. Science and technology allegedly alienate the human being from this ecstatic existence; they dismember that enchanting world into subjects and the objects, and thrust the individual into the cold and soulless space.

Such accusations were more or less justified in the industrial society, whose science was dominated by positivism, materialism and reductionism. Since then, nevertheless, science has changed dramatically, moving away from those dull 'isms', embracing the audacity of poetic reason, and discovering a paradoxical, explosive, pulsating universe that is more like a poem than an analytical judgment. We can speak of yet another variety of transpoetry—*noopoeia* (from the Greek νόος, *noos*, or 'mind')—the poetic principle of reason itself as it appears in modern science. The higher the stage of the evolution of science, the more profound its poetic quality. Albert Einstein maintained that scientific thought always contains an element of poetry.

According to the latest physical theory of quantum entanglement, even objects separated by immense distances turn out to be interdependent, and, in a certain sense, ubiquitous ('nonlocal'): the quantum state is transferred 'outside' of spatiotemporal dimensions. This deeply poetic idea violates the logic of empirical reasoning. Hence the phenomenon of quantum teleportation, when the state of one physical object is transferred to an 'entangled' object in another part of the universe. Even Einstein found too audacious the presumption of such a connection between particles, calling it 'spooky action at a distance'. But poetry is indeed this very 'spooky action at a distance', or 'conjunction of distant ideas'—a definition attributed to the Mikhail Lomonosov, the eighteenth-century Russian poet-scientist. Poetry is the teleportation of images on the grand scale of the universe. Between phenomena of any distance, connections are established via symbols, metaphors, metonymies and synecdoches.

Equally poetic is the modern understanding of the informational nature of matter. For the MIT physicist Seth Lloyd, the universe is essentially a giant computer, in which every atom and every elementary particle carries bits of information.<sup>9</sup> The notion that the cosmos and its every constituent particle are continuously making calculations on a quantum level is at once a concept of modern information theory and a dizzying metaphor, reminiscent of the poetic vision of the ancient philosopher Anaxagoras, in his fifth-century BC work on *homeomeria*: in every particle, he thought, no matter how small, there are cities inhabited by people, cultivated fields, and the sun, moon and stars shining like our own. Homeomeria is literally ‘semblance’: the idea that every part must bear a similarity to the whole. This ancient mythopoetic intuition corresponds with Benoit Mandelbrot’s theory of fractals, and with the idea current in physics, that elementary particles can be viewed as open gateways, or ‘wormholes’, leading to other universes. Everywhere in contemporary science we observe the patters of metamorphosis and reversal: the interpenetration of the great and the small, the transformation of mass into energy, of particles into waves—the poetic workings of the Universe, revealed at the level of fundamental science.

Science, of course, remains science by rigorous adherence to method: observation, description, experiment, quantitative measurement, reproducible results, etc. Yet, at the highest level of generalization, science increasingly approaches poetry. Scientists themselves are often struck by the beauty of the formulas describing the laws of the universe: it is increasingly apparent that these laws are not solely physical—but also aesthetic. Bertrand Russell observed that ‘Mathematics, rightly viewed, possesses not only truth, but supreme beauty—a beauty cold and austere . . . The true spirit of delight, the exaltation . . . is to be found in mathematics as surely as poetry.’<sup>10</sup> In actuality, Big Science and Big Technology are the two main poetic genres of our time.

If we were to look at the comprehensive visions of the world offered by today’s science, we would find that their foundations rest on grandiose metaphors. The metaphor of ‘man-God’ has been pivotal for centuries of Western civilization. A number of other fundamental metaphors have emerged, mostly from science:

Universe as a computer  
 Universe as a hologram  
 planet as a living organism  
 computer as a brain  
 Internet as a nervous system  
 genes as language

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 9 Lloyd 2007.

10 Russell 1919, p.60.

The fact that the meaning of these metaphors is scientifically reasonable and sometimes even realized by technology does not make them less poetic. Poetry is part of the scientific worldview and serves a driving force for new discoveries and inventions.<sup>11</sup>

## IX. The Power of Poetry

Even while diminishing in social authority and standing as a verbal art, poetry is expanding its power on a much larger scale—at the levels of technical, biological and social transformations. To understand this new *transpoetry*, we need the new disciplines of *transpoetics* and *transphilology*, which would investigate metaphors and metonymies, oxymorons and hyperboles as expressed not only in words but also in things, organisms and instruments, in the technosphere, biosphere, sociosphere and noosphere. Technopoetics, biopoetics, sociopoetics, noopoetics—these new disciplines may one day appear on interdisciplinary syllabi in universities, and elucidate the poetics of technical invention, social transformation, and of new genetic and biological forms.

Poetry as it once appeared in ancient myth is not just ‘the best words in the best order’: it is a power tantamount to incantation and prayer, to wielding power over nature. In Greek mythology, Orpheus’ song could move trees and rocks and tame wild animals. When Väinämöinen, the demigod of the Finnish epic *Kalevala* sang the magic rune, the lakes shook and mountains crumbled. This power of poetry has not receded into the past, and it is more than just a beautiful legend. Today, poetry continues to transform the world, right before our eyes—more powerfully and purposefully than ever. Physics, biology, information theory and computer technology are all coming to the service of poetry, which defines the meaning of progress as *poiesis*. Its higher goal, once unattainable, is to re-create the universe as a poetic composition, where everything reflects upon everything.

Poetry thus emerges from its early, verbal form and becomes the engine of a most powerful transformation. Armed with the energy of science and technology, it will transform the world as magically and potently as it had ever done in verse and incantation.

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<sup>11</sup> Metaphor does not imply the identity of things, but instead their similarity and congruence. It would be blasphemy to identify man with God; it would be vulgar materialism to identify the brain with a computer. Where similarity verges towards identity, poetry ends and reduction begins.

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