

COMPOSER'S CREATIVE WILL AND SCIENTIFIC AND TECHNOLOGICAL PROGRESS (RAISING A POINT)

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Due to the COVID-19 pandemics, most of the world has switched to distant working and learning. The future strategy of political and economic processes in the “new world order” will probably reveal why mankind had to use three fundamental principles (social distancing, quarantine, and isolation) apart from the goal of staving off grave social consequences. We are pushed to consider this problem not because of the origin of the virus, but because of the world's reaction to it, especially since many schools are ready to continue working remotely despite the decline in epidemic-related danger.

Previously, no life-threatening virus has raised such an alarm with elements of psychological terror; neither have we ever witnessed such a wide-scale campaign to eradicate famine in the world, for example. The world has never before been so mobilized, neither has remote work been chosen during previous viral epidemics, even in the era of the internet. Yes, disinformation comfortably adapted to our worldviews often produces a “bubble” further alienating us from actual and digital reality. Apart from fundamental aims, ones that may only be hypothesized, the three pandemic-related principles connected may have the far-reaching a purpose of gradually generating the irreversible progress in information technologies. Intensified sociological texting seeking to find out the psychological and economic results of the pandemic and studying the adaptation of humans to a new reality suggests that the world may be indeed preparing for an active “intervention” into the epoch of novel information technologies, the necessity of which has been already ripened. Accordingly, mankind's readiness for face similar dangers and a technological may be tested.

Interestingly, what would the relationship between the composing music and scientific and technological progress may be like in the future? Human cognition, and relevant artistic processes, always develop alongside scientific and technological progress and social formational shifts. Yet the history of music is rarely viewed in synchronic connection to scientific achievements, except for certain processes linked directly to technological innovation and the development of electronic musical instruments and electroacoustic music. If music involves emotions or thoughts seen through a rational prism, then the issue in question must cover both technological and aesthetic aspects. Even when scientific and technological progress does not directly deal with an artwork, it still influences it by contributing to the advance of human thought. That is why artworks, in terms of worldviews and thinking, are products of their time and context, much like philosophical teachings or concepts, though it is a two-way street because art also propels civilization. Quite often, ideas born in the bright mind of an artist foretell the future, contemplate the sound realities of the future, possibly even seminal events, which is why civilization is a sum of more or less concurrent processes in economics, culture, and science.

Technological progress (military production) on our planet was triggered by Homo sapiens. A major push in civilization, in arts in particular, came from Pythagoras and by his disciples who recognized numbers as the basis of the physical and spiritual world. Having discovered natural order of sound in the form of numerical organization, the idea of the mathematical approach to art was proposed for the first time. The concept of Music of the Spheres, the basis of the Platonic school,

influenced science and art in periods. Progress was ensured by the reform of the musical notation in the Middle Ages, by the mnemonic system of solmization of Guido of Arezzo, isorhythm deriving from experiments with rhythm, which evoked associations with relativism through the fetishization of its typical principle of relativity. Isorhythm is a compositional technique that foreshadowed constructivism, especially given the fact that its evolution gave rise to panisorhythm, much like the serial system to serialism. In the Baroque era, music was consciously or subconsciously influenced by the metaphysical theories and rationalism. Lorenz Christoph Mizler, Benedict de Spinoza, Gottfried Leibniz, Christian Wolff, and Johann Christoph Gottsched, among others, believed that each art could be reduced to a series of rational, codifiable, and demonstrable rules.¹ The principle of connection of music to mathematics remained relevant in that it allowed for to link art to exact sciences. Using the principle of “collective non-conscious” (Jung), it would be possible to link, through association, the three laws of Newton’s classic mechanics (1687) and the concept of the colors spectrum, and the system of functional majors and minors tied directly or indirectly to tonics and the centralized hierarchically. In the same vein, we may call to mind Joseph Haydn’s nearly religious experience during his visit to Herschel’s astronomical observatory (1798) which inspired him to write *The Creation*. Beethoven dedicated the humorous canon *Ta ta ta, lieber Mälzel* to Mälzel’s chronometer, a theme later recurring in Symphony No. 8, and in the Battle Symphony, as an audible imitation of Mälzel’s special automatic weapons. Alexander Scriabin’s *Prometheus: The Poem of Fire* (1910) was inspired by the Big Bang Theory, with the *Prometheus Chord* symbolizing the state of singularity. G. Mahler introduced a cowbell and a hammer in the orchestra, and so on. Until the 20th century, the ties to technologies or scientific innovations were more decorative or mechanical, and in many cases limited to the search of the bounds between music and mathematics in the sphere of composing technics. Since the 20th century, human cognition has been influ-

enced heavily by the ideas of the pioneers of quantum mechanics and other general physicists or scientists like Max Planck, Ernest Rutherford, Niels Bohr, Louis de Broglie, Erwin Schrödinger, Albert Einstein, Paul Dirac, Wolfgang Pauli, Stephen Hawking, Elon Musk, Raymond Kurzweil, Steve Jobs, and many others, as well as by innovators in the spheres of thermodynamics, optics, and thermal radiation. Equally significant have been ongoing work on hibernation, Avatar-Android Project, and ideas in Artificial Intelligence, neuro-engineering, brain-computer interface, neuro-transplantation, transhumanism, holographic projections, volumetric images, calculating machines, radio, TV, personal computer, inventions of Desktop Computer, Apple computer, Laptop, iPad, Netbook, smartphones, diversity of electronic musical instruments, from phonograph to synthesizers, enhanced multimedia capabilities, creation of programming languages, sci-fi ideas in literature, and cinema. Mainstream reality has enriched human life and pushed the limits of “cybernetic life.” It is a fact that the music of the 20th century, more than previous eras, ascribes enormous importance to organization of the space-time continuum, which is relevant to progress in science and technology. Structuring and organizing a musical work, above all, implies its specific organization in time and reveals itself in in-depth structures.... New reality has radically changed and transformed, reevaluated all standing opinions on the organization of the musical tissue, on sound logic inherited by European art from Aristotle, one based on connections of causality. Instead, priority was given to the so-called logic of absurd that ignores causativeness and resembles mythological logics, in which cause and effect are embroiled and mixed, with a part possibly replacing the whole and assuming its features.”² In the 20th century, composing exhibits submission to technocratic, urbanist trends, with the growing role of algorithmizing, mathematization, and mechanization of the creative process.

Igor Stravinsky wrote about the links between the creative process and mathematics: “Music is far closer to mathematics than to literature, not perhaps to mathe-

1 Bonds, music, 2014, p.96.

2 Bolashvili, History, 2011, p. 8.

matics itself, but certainly to something like mathematical thinking.”³ The industrial era caused technological shifts as the foundation of computer-based progress. The forging of the new acoustic realities in the mind of a composer gave rise to electronic musical instruments, with the futuristic movement playing an important role, influencing in turn the future of the electronic music. The recording industry and electronic musical instruments were followed by the era of computer media, with musical compositions resembling a playground for experiments imitating the execution of computer commands. In the process of composing, new terms emerged: mixing, sound and signal synthesizing, sequencer, sections, generate, signal regulation, input, output, and so on. Today’s agenda calls for researching and studying technological issues on top of the aesthetical. Some professionals not only define the worldviews of our era but also bring about revolutionary, seminal changes in electroacoustic music. Suffice to mention the audio-visual program created by Edgard Varèse and Iannis Xenakis during their work on the project of Philips Pavilion. The greatest cognitive changes in music were initiated by the audio-visual installations of Iannis Xenakis. Similar to Varèse, he is interested in the spatial features of sound, the idea of unification of sound and space. He the author of algorithmic compositions bases logic in intuition. The music written by Karlheinz Stockhausen for audio-technics, an example of expanded human cognition of planets, is of seminal importance in the history of electroacoustic music. John Cage’s art stands out for radically revolutionizing musical thinking through his acoustic searches in the sphere of experimental music and sound installation. His composition *4’33’’* urges toward spiritual transformation in order to listen to the music in silence instead of a pause. *Organ2* is an attempt to overcome time and space as human illusions, a performance written for 639 in advance, in 2001, to challenge eternity itself to a duel. The fact that no one will be able to listen to this composition from the beginning to the end symbolizes eternal spatial voices sounding before us and to remain after we are long gone. Alvin Lucier’s experimental composition *I am Sitting in a Room* is revolutionary in the sphere of electroacoustic and experimental music, and so are Trev-

or Wishart’s electroacoustic compositions using human and other natural voices, possibilities of improvised vocalization directly connected to the diaphragm. Clearly, new sounding realities obtained through traditional instruments, composed by other brilliant composers of the 20th century, are relevant to technological progress (Bartok, Webern, Penderecki, and others). In Georgia, in view of the given problem, it is worth to mention Eka Chabashvili’s music. Research on the acoustic nature of sound at a scientific level led her to a form of organized music, a system of atomic music, a constituent part of which is the composing technique of multi-topophonic music. Reconsidering points of intersection between physics and music naturally makes a composer inclined towards innovative composing experiments. One of their ideas is to show us the liberation of space for sound during its unlimited movement, and to observe frequencies give birth to new vibrations.

To the question whether the accelerated progress in science and technology, especially after it entered its intensive phase (the era of assimilation of the solar system, or space), will cause the rejection of fundamental values of music, the answer lies in the 20th century. Unprecedented technological shifts made an enormous impact on music in this century; it is remarkable that the art of music, liberated from Church canon laws centuries ago, has returned to mystics, to the spiritual themes in this very century.

The technological century has brought an end to the process of disenchantment (Max Weber) and the planetary conscious incorporated in such opuses has expanded. The primacy of mythological, religious sets of themes implies that the relationship of a human being towards the mystical does not change even when the very concept of God is missing—the universe and human beings grow simultaneously in view of cognition, and the assimilation of space has further emphasized the mysteriousness of its boundlessness.

These circumstances, in turn, have furthered the ontological depth of art, revealing the charismatic contents of ideas incorporated into them, widening the scope of manifestation of “mystical” and its intensity. As for the music proceeding from its specifics, it is potent enough

3 Druskin, Stravinsky, 1983, p. 137.

to convey this “mystical” (Since antiquity, this ability of music is discussed in philosophy, aesthetic thoughts, letters of the holy Christian fathers, psychological and sociological literature). As space becomes more and more boundless in terms of cognition, the interest in mystics has not been lost. That is why, so far, scientific and technological progress does not interfere with the intuitive creative process. Civilization, simultaneously with scientific and technological progress, relies spiritually on two fundamental phenomena: 1) certain mystical representations, religions and 2) art. Under such conditions, during the creative process of music-making, the following do not change: 1) the primary role of intuition as a method of contemplation of the universe (which is also relevant in light of long-lasting pondering issues preceding scientific discoveries, 2) even with electronic music, a musical work does not rely only on the principle of algorithmic calculation. However great the share of mathematical thinking and calculation, it is still secondary comparison to inspiration and intuition. Neither the latest technological equipment nor knowledge can determine the aesthetic side of a work. The music is not written according to the rules—the rules are used only to copy it on paper. Leibnitz wrote on the primacy of the sensible intuitive cognition during the realization of the creative concept: “Nothing is in the intellect that was not first in the senses, except the intellect itself”.⁴ Semyon Gruzenberg believes that intuition is an involuntary, unconscious act of creativity, un-cognized prophecy of reliable scientific hypotheses, and deems it the basis for creative inspiration and ecstasy.⁵

2) The process of music creation, which is immanently experimental, placed against the background of new technologies, now gives a complete *carte blanche*, though the constant precondition of creation of an opus remains creative will and the demand of creativity, along with the intuitive method. The knowledge of musical systems, mastering composing technologies, professional education, industriousness, patriotic or financial motivation, high intelligence, depth of thinking,

and imagination do not yet represent sufficient preconditions for an opus creation. It is necessary to express strong creative will in the psychic act of making. For Hegel, artistic inspiration meant assigning artistic form to concept, mental absorption in it until it is brought to life. The human beings, themselves products of evolution, have the same reproductive program in their minds: to reproduce and, with a free will, to create a micro-universe in the form of one’s own art production, which is a particular kind of compensation of the program of death incorporated into the human body. Creativity is a spiritual product of thought, which is emanated into the material world by means of creative will. Mamuka Dolidze rightfully suggests the following term for the materialization of thought: acquisition of its own being through cognition.⁶ It is obvious that production itself is important only according to the depth of thinking revealed into it.

3. Even with modern technologies, the essence (to express the universe, to reveal human nature, which is also part of the universe) and mission (to serve as spiritual food and to aspire to the perfection) of music have not changed. Music always mimics nature and conveys its mysticism; accumulation of the knowledge about space has widened the “musical space,” too. If earlier nature was imitated by music (human voice is also a part of the nature), electronic sound is really also a part of space that used to exist there before, one that we can now hear (a human being cannot hear anything that is beyond one’s cognition. It is another question whether the universe is like its image that our cognition gives to us). Max Planck wrote, “Science cannot solve the ultimate mystery of nature. That is because, in the last analysis, we ourselves are part of nature and therefore part of the mystery that we are trying to solve. Music and art are, to an extent, also attempts to solve or at least express the mystery. But to my mind the more we progress with either the more we are brought into harmony with all nature itself”.⁷

⁴ Robertson, *Cognition*, 1990, p. 340.

⁵ Deviatova, *Peculiarities*, 2014, p.68.

⁶ Dolidze, *Phenomenology*, 2007, p. 75.

⁷ Sykes, *Vision*, 2002, p. 383.

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