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GENETIC ENGINEERING AND CONTEMPORARY ART: STRUCTURAL ASPECTS AND THE PROBLEMS

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Abstract. Today innovation is the result of complex interactions between individuals, organizations and external factors. Turning to the metaphor of evolution one can say that the rule "the more adapted to the environment survives" is substituted by the rule "anything that conveys the environment more precisely survives". In the process of continuous complication of systems new correlations emerge between cognitive knowledge and effective model, logic and image, reality and representation. The development of new interdisciplinary relations in the sphere of contemporary knowledge, from science to contemporary art, from the methods of data processing to the methods of metaphor presentation, is particularly influenced by the progress in the field of techno-biological research. Hence new domains appear that combine various methods of scientific and artistic representation based on techno-biological modelling. In the new reality, which becomes more and more artificial and media-conditioned, a new sign regime is established, which cancels the historically shaped boundaries between nature and culture, natural science and humanitarian technologies. In these conditions it is quite natural when a researcher after having analyzed the characteristics of the contemporary techno-biological domain, wants to comprehend the way they impact the development of new artistic strategies and the essence of their novelty.

Keywords: contemporary art, genetic engineering, ars chimaera, techno-biological artworks, chimerical design, wet technologies

1. Indigenous alien

Judging from various revolutionary art trends in the 20th century (from Futurism and Dadaism to numerous components of the international art-network of its later years) that focused on the study of "the borders of culture fostering their own breakdown," we know that culture, in order to re-emerge in a new light, always has to produce something of its own alien, besides something of its own. And along with this it has to generate a necessary and quite high degree of tension in their relationships. Culture is ready to implement both its own alien and

something of its own out of almost any available material. The material is, or can comprise various manipulations with a sequence of the above indicated. Mythological consciousness is the principle mechanism of generating the alien as a prerequisite for awareness of its own. This is the collective consciousness in society. The essential or maybe the principal elements of assimilating 'the unknown' are various indirect strategies of producing the own alien (for instance, reflections caused by the recurrent tide of material and technical deconstruction). By means of those strategies the mythological consciousness takes care of maintaining the borders as a safeguarding area between the own and the alien. Being a faithful guard of the cultural world, a constituent of the immune system of the culture organism and one of the working parts of mythological consciousness, contemporary art with its heightened sensitivity to everything alien plays an extremely important role in maintaining these borders.

The cultural destiny and the sense auras of bio- and genetic engineering technologies up to now were wholly determined by the fact that they are still considered culturally shocking. They are not entirely accepted by culture, they have not yet become so natural as to pass unnoticed, and are perceived as something alien. During the present intense, nervous and uneven period of assimilation, these technologies occupy an unsteady position between chaotic formless disorder on the one hand, and incessant attempts to stabilise them, and on the other hand are regulated and systematic; balancing on this edge they fall alternately into one of these two categories. Today they almost entirely fit the niche of the alien, being subsequently ascribed various implications like either a panacea for mankind's salvation, or a provocation of a world catastrophe and the coming of doomsday. Culture, which sets limits, and thanks to that and exactly because of that is able to overcome them, needs mastering the phenomenon of bio- and gene technologies, the latter undoubtedly being one of the most significant landmarks of nowadays, and a sign of an important stage in formulating the general idea of 'borders'. Therefore, as a variant of the own alien, which is meant to be adapted, in contemporary art new trends are emerging that apply estimative technologies of risks while creating bio-temporal images of reality.

2. The chimerical idea

The sensational discovery of the molecular structure of DNA made in 1953 by the physicist Francis Crick and the biochemist James Watson was a cornerstone in the development not only of genetics, but also of certain 'contiguous disciplines'. Along with this, numerous studies undertaken by various groups of scholars caused a real current of research into the molecular foundations of heredity. The discovery of a double DNA spiral and indisputable arguments by A. Hershey and M. Chase proving that DNA contains the genetic material of an organism, have proven the reliability of the empirical fundamentals of Darwin's evolutionary theory and Mendel's theory of heredity. Fifteen years after molecular biology had

emerged and got formed, scholars came to mastering opportunities of genetic engineering, i.e. the methods of influencing a cell in order to obtain the desired genetic information. Thus, they had found a method of changing special features and characteristics of living organisms directly as it is needed, including penetration through inter-specific reproductive barriers.

It takes time for any advanced technology to pass the stage of strictly functional use and, having passed the frontiers of its semantic field, obtain representative meaning. It took at least twenty years for genetic engineering to focus its research and practical tools on the one hand, and on the other hand present itself as an aesthetic object, the latter being an indispensable condition of its subsequent social adaptation. Up to the mid-1990s genetic engineering technologies were regarded as a help function within cultural phenomena characterised by the new social and economic conditions of globalisation and total availability of information. Therefore, they became available to those artists who realised the necessity of escalating their own authority. This was the way that Ars Chimaera, or the art of chimeras, appeared in the art world. Ars Chimaera confronts problems that by right make this artistic trend revolutionary indeed. Ars Chimaera is a field of artistic creativity, which purposefully rearranges new genetic combinations that do not exist in nature, in order to produce organisms with specified heritable aesthetic characteristics. This field of creativity is based on the use of certain genetic and biochemical methods in contemporary art practice, among them neogenesis (correcting the genetic code by exerting influence of amino acids that, though existing in nature, have never been used by terrestrial forms of life to form an organism), degenesis (knock-out of the genes or genetic structures to obtain new characteristics of an organism), and transgenesis (removal – or artificial synthesis – of genes or genetic structures from the cells of an organism and their implantation into the cells of different organisms). In spite of the fact that the first artistic experience based on the synthesis of the E. coli bacterium DNA date as far back as 1986 (Davis 1996:72), attempts to formulate terminological definitions of so-called transgenic art occurred only recently (Kac 1999:292). This is hardly surprising as the applied component of science is actually much more highly developed than the theoretical comprehension of scholarly problems – today definitions require additional consideration proceeding from the results of research (in neogenesis, for instance). Besides, a definition such as 'chimerical' seems more acceptable to all concerned because it is polysemantic (Chimera: a) (biol.) An organism consisting of tissues or parts of diverse genetic material. b) (myth.) A fire-breathing monster with the head of a lion, the body of a goat, and the tail of a serpent; in Medieval art – sculptures of fantastic monsters. c) A wild and unrealistic dream or notion. d) A fabulous beast made up of parts taken from various animals.), the variety of its meanings helping widen its terminological and semantic scope as the described artistic practice is interpreted in different ways. As a result, the definition incorporates diverse energetics, and obtains a thoroughness of interpretation to counterbalance plain explanation of the method.

Until recently chimerical art practice was a marginal activity of aesthetically-minded scholars and those artists who had abandoned the traditional art space for

that of the natural sciences, while today it is in the process of finding a visual artistic and contextual outline. International authorship, the ever-widening geography of grounds for discussions and displays, an ever-increasing number of publications and thematic editions show a significant increase in interest not only in media-phenomena, but also in the suggested range of social and artistic representational tools. Along with this, one cannot but agree that the chimerical trend as a tendency remains practically illegal, being neither organised, nor finished in its concept, terminology and communicative practice – there are no special periodicals, electronic deliveries, regular conferences etc. Nothing is left but the belief that as soon as the 'descriptive' stage is over, the stage of institutional legalisation and the trend's research will not keep us waiting. The 'descriptive' stage should be concluded both as a 'narration' about Ars Chimaera, and as a narration, which is provided by the trend proper – one that helps it exist in the realm of art.

3. Popular mechanics

To get an idea about the mechanics of chimering let us briefly recall the fundamental principle of encoding genetic information in a DNA molecule. The living cell may be simply defined as a protein-producing programme-controlled machine. In accordance with the programme commands, double DNA spiral being referred to as the programme, a cell creates most complicated chains of protein molecules built from amino acids. They play the principal role in the cell's life – forming the cell's carcass, catalysing chemical processes, functioning as regulators and transport providers etc. The protein is built by 20 different amino acids (actually more than that, but the remaining amino acids appear as a result of an additional chemical modification), each of them being encoded in DNA by a triplet chosen from four varieties of nucleotides (A, G, C, T). The DNA sector, which encodes a particular protein, is called a gene, and these genes that specify the exact characteristics peculiar to an organism. Their transplantation (correction or cutting off) changes the programme of the organism, and its cells start producing substances (or vice versa – curtail their production) that work to create new characteristics within the organism. To execute the procedure genetic engineering has a set of various technological methods at its disposal to split DNA (arbitrarily or in certain parts of a gene), to segment it (for study or reproduction), and also to paste it together with DNA of other cells and organisms. These technologies help to overcome inter-specific boundaries and the mixing of information between species that are in no way connected with each other, for instance in the process of implanting human genes into animal or animal genes into a plant etc.

General knowledge of the nature and the mode of information delivery along with transmission of genetic engineering methods from the laboratory to a working environment (development of recombinant DNA-biotechnology in particular) define certain specific representative properties of Ars Chimaera. One of these

basic properties can be deduced from correlation of chimerical art with the conditional character of an image, which is the most fundamental principle of art.

In the course of the 20th century several modern and post-modern artistic trends (from ready-made and assemblage to ALife and VR) questioned the principles of imitating nature, but the mere idea of imaginative relativity rendered by means of certain illusionary (infinitely variable) facilities of a prototype, either as a concept, or as a matter of tactile and corporeal form, has never been rejected in such a clear and distinct way. Neither ideological changes, nor the sequence of aesthetic and philosophical programmes have ever touched upon the principle of mimesis itself in its fundamentals by bringing the idea of total authenticity of artistic object and its prototype to the forefront. In our sight cardinal change in representational regulations of the 20th-century art occurs – the reality of pre-sentation (the world of art creation) is replaced by the presentation of reality (creation of the world), thus reducing to nothing the difference between an originally artificial model and the actual world. Radically evolving the idea of David Deutsch, one could formulate the basic representational and technological principle of Ars Chimaera, which would state that "Any ultimate biophysical system provided with a set of advanced aesthetic properties can be created and transformed completely using bio- and molecular-technologies operating with structural infinitesimals." By this I mean not just the definition of Ars Chimaera as a term, but orientation of chimerical art to complicated interaction with the thriving fields of current research (bio-medicine, robotics, nanotechnology etc.) that have not yet passed through the stage of social adaptation and have not clarified themselves as a help function. Therefore in the context of today's art chimerical art does not just produce chimerical objects, but accomplishes a cultural break beyond the limits of accepted artistic prescriptions, thus changing them and making its own rules.

4. Contemplation of communications

As with any work connected with technology, an artist first of all attempts to grasp the essential point of a certain medium instead of just 'gaping' torpidly at the technology in action. If he takes it for an instrument or a tool, he is doomed to want to master it. This is what mainstream works mainly demonstrate with respect to biotechnologies, which in a blink became fashionable and attractive, thus scratching the surface of pop-culture, playing with the theme with the help of traditional media tools – photo, video, computer animation etc. As a result 'genomic kitsch' spreads to art editions and exhibitions, where the chimerical idea works as a brand, a sort of spectacular picture, never touching upon either the essence of the technology, or its poetics. Ars Chimaera, on the contrary, emphasises a different strategy of the artist, and not simply the production of images. On the one hand the new strategy introduces a joint 'technology guide' instead of an author, and on the other hand proposes substituting the production of

a habitual aesthetic object for ethical and aesthetic activity. The basis for this viewpoint lies in the opportunity of conducting artistic research in the surrounding world, understood as an estimated system of forces. By the way, it would be a mistake to take every scientific trend of today's art for an object of experiment on the assumption that they use certain tools and technology for fixing artistic facts in the surrounding world. The initial point is different here. Experiments are conducted because experimental arts make the surrounding world present itself as an estimated predictable system of forces – it aims at finding out whether the surrounding world becomes apparent, and being presented this way, how does it let us know about it.

The present day stage of scientific and technological development allows genetic engineering to easily create any chimerical organism. Still, artists who work in this field are basically interested in something else – namely that very stage of development when biotechnologies are provided with 'social and service' functions, when an artist uses technological information as a tool to create artistic works. Hence the latter are no longer considered in the terms of 'progressivism' pathos for scientific development – discoveries, inventions and licences have nothing to do with this. The artist's work certainly continues 'towing' scientific 'contour', but in principle it is aimed at different spheres like social or philosophic ones. It may be also organised to interact with the field of mythology or some artistic context. Works of this kind use bio- and gene technologies as media, in other words as mother-milieu that give birth to a work and make its realisation possible. It means that the Ars Chimaera artist's attention is entirely concentrated neither on making a chimerical product, nor on obtaining a result (in which a scholar is interested most of all), but on the media that help obtain a result, and on his own thinking on it. As soon as it happens, an artist stops working just to get a traditional artistic product, and also stops thinking in the way he did before, because since then he thinks about his own thinking. And this is the service and communicative field of knowledge, not that of research and production. Therefore, according to the definition suggested by Peter Weibel, the change from 'world contemplation' to 'media contemplation'" in other words to contemplation of 'communications', is evident (Weibel 2000:8). That form of media contemplation regarding bio- and genetic engineering technologies, which can be considered from the point of view of new communicative impossibilities and initiated prohibitions, is exactly what is suggested that we call 'chimerical art'.

5. Linguistic aspects and the temporal component

The continuous proliferation of advanced technologies in recent decades resulted in a complicated, extended influence on all the constituents of today's cultural process. Among the consequences of such an influence in humanities one might point out the total separation of the cultural subject from the "great linguistic discourse" (and interpretation practice) and its involvement in straight

operational activity, in which technology appears to be directly connected with physiology of an organism, the entire complex of its mechanisms and the variety of individual manifestation. Such a significant conceptual development at the morphological level today leads the scholar to predict considerable change in the current linguistic situation. Taking the existing state of art and culture as a force field of information flow, which in its turn operates with the flows of attention, many uncategorized information areas that come to life become entirely possible. Specific categories ('virtual'–'real' or 'dynamic'–'static', and so on, as deep as the foundations of logic, which support the validity of formal reasoning like C = A+B [causality] or A ≡ A [identity] etc.) in a common information flow lose their sense and establish a precedent for an opportunity to manipulate artistic perception.

The result of the long-lasting semiotic project in conjunction with non-categorisation of the information space should not be referred to as a crisis in art, science or philosophy, based on linguistic problems. This is an evident crisis of language as the basis of communication, which identifies the qualitative change to a different communicative level. Discontinuous language regulated within the coordinates of duality yields to the language belonging to the continuous sphere, which does not accept duality as a scale of restricting coordinates. Discontinuous linguistic values (and further on – to the mechanism of idea-formation based on duality) become optional elements, while time appears in the forefront as the only significant constituent of continuous language. It means that language, pure duration being its principal characteristic, appears as a communicative tool. Duration here is given as the duration of (co-)operational interaction and physiological reaction of an organism. In other words language is recognised as an objective biological reality.

Those are attempts to operate on the temporal constituent of language that make certain up-to-date practices intended to create bio-temporal presentations of reality progressive, chimerical art among them. Comparing various temporal zones, an author not only makes the boundary between the fictitious and the real permeable, but allows an onlooker to immerse himself in meditative thought about a constructed time of the project, about the inner sense of time etc. In this respect Ars Chimaera, along with other 'wet-technology' trends, offers an exclusive genuine media, and it is an opportunity for artistic research into deep-laid temporal structures like genotype (hereditary programme of development) and phenotype (the totality of an organism's features and characteristics, which becomes apparent upon the interaction of a genotype with its surroundings). Operations with the duration of a work of art executed on such a scope raise the issue of different fixing and preservative functions of chimerical art. Traditional art of the 20th century based on the opportunity of conventional methods of visualisation of information was able to stay within the short period of perception of an artwork. The fixing mechanism itself was disposed to perceive an artwork briefly, within a minute space of time, theoretically within a moment, which made a work of art immortal. Still, artists were aware of the fact that preservative functions of such media inevitably lead to distortion and deformation, and this induced them to pay

attention to the temporal aspects of techniques for fixing and securing works of art (video in the previous century and processional computing today are successive steps in this direction). For their part the genetic and chimerical trends use their own tool of perpetuation, inherent for a given media environment – through biological function of fixing to an abrupt extension of the perception period. But for all that, it is characteristic of chimerical technologies to keep their innate preservative function invariable when using artificial and natural distortion of the trend's poetics, presuming the existence of endless and at the same time mutating (transitional) works of art. The Ars Chimaera artist assumes this mutability, because for him the world is not a condition making an artwork possible, but on the contrary – his artistic act expands the boundaries of the idea, and it can be neither burned-out, nor forbidden as inadequate to the world.

6. New functionality

Having realised how the biological contour of language manifests itself, we recently came to denial of the comprehension of it as a denotative symbolic system that is intended to convey information. Today scholars concentrate their efforts on discovering its fundamental biological function. According to Humberto Maturana, it consists of "orientating a guided person within his own cognitive field, not in pointing out substances that are independent of him" (Maturana 1996:224). In other words the functional aspect of language lies in creating a (co-)operational interaction of characters by working out some common reference system. As any reference system is regulated by its specified option classes, it becomes evident that linguistic behaviour may be referred to as just rational, which means that it is determined by relations of necessity existing within the given reference system. Thus, highlighting the biological component of language as a key point brings to light a key notion of interactive 'success' which one way or another helps to support a living organisation. From this point of view 'successful' interactions should be understood as the only grounds for a person to decide whether his behaviour within the descriptions he lives amongst is appropriate, and hence as the ultimate truth. For all that ethical rules exist as an accompanying and, according to necessity, relative comment. Such, or approximately such, is the rhetoric of the new biological functionality.

The revelation of radical changes in linguistic patterns makes those who work in the humanities develop new forms of criticism in relation to the existing process. Speaking of bio- and genetic engineering, one cannot but mention that artists working in this field present not an aggressive, but a protective side. First of all their objective is compensation for the destructive influence new technologies bring with them, they tend to neutralise it, not to act destructively themselves. Practising the extensive widening of art, the Ars Chimaera artists extend their activity into the fields formerly occupied by social and natural sciences only. Along with organising new, formerly impossible, interdisciplinary unions, they

also include various categories of knowledge in their strategy, repeatedly reinforcing the formalistic constituent. Thus, based on positivism, which by definition is presented as the necessary productive force of a system, strategies of chimerical design are formed as a possibility to design living organisms aesthetically by manipulating the recombinant DNA. On the other hand – based on critical and reflexive knowledge, which plainly or by implication raises the issue of value and the goal of such practices, and stands against all kinds of hyper production, strategies of 'categorical failure' are also worked out.

7. Preventative engineering

The prospects of creating a biological organism as an artificial object that has no parallels either in nature, or in tradition, and its form directs us only towards the inner principle of its functioning, have strongly influenced those artists who became aware of the necessity to widen their creative potential. This encouraged them to try to make a work of art as a certain 'aesthetic organism', existing not as a sign of something else, some external 'content', but as a discovery of its own construction. This strategy, which equates works of art and biological objects on the assumption of such criteria as 'novelty' and 'strangeness', corresponds to traditional modernist practices of the early 20th century. This correspondence initiates consideration of certain pivotal problems for modernism (with an amendment for the present day of course), for instance the problem of correlation between the 'vanguard' artful bio-object and the utility of biological chimera. It is natural that the chimerical organism developed in the laboratory (or then – under industrial conditions) does not present itself as a pure manifestation of its construction: the latter appears as a result of its scientific (medical etc.) expediency and those technological tools that help realise the function. In this sense development of the Ars Chimaera theory and practice encounters certain difficulties. On the one hand, the very medium of a chimerical artwork production remains inseparable from the technological component, which makes realisation of the artwork possible. On the other hand, absolute equating of the Ars Chimaera work and a chimerical organism obtained as a result of scientific and industrial activity or some experiment (in both cases produced for the sake of utility), makes Ars Chimaera totally dependent on science with its historically relative knowledge.

In the given circumstances one of the possible strategies practised by the artists who belong to 'wet-technology' trends, is not looking for what else can be done by art, but for what is possible to be done by nothing else but art. In such a way the central point of the activity moves from production of 'wet' bio-objects (with which science and bio-industry are occupied) to the research into the conditions of emergence of the works of 'wet' art. In particular it is true for the moment that when artful bio-objects lose their utilitarian function, which makes the object very useful, and thus, convincing in a 'progressivist' –way. As a results of such an approach the 'wet' bio-object and the corresponding biological technology are first

expected to fail in order to then be beautified, they ought to lose their practical value to obtain artistic value later on (cf. Deleuze and Guattari's "the more it breaks, the better it works"). Therefore, we understand the strategy of 'categorical failure' in Ars Chimaera as such a type of artistic activity in bio- and genetic engineering, which is aimed at presentation of just another prohibition upon the very practice of the art of chimering, though in project it is purposely directed to programme 'failure' and 'defeat'.

To illustrate the afore-mentioned let us take an example from the art of tissue engineering – a field of activity in 'wet' technologies, which is close to Ars Chimaera, namely the 'Pig Wings' project by Australian artists Ionat Zurr and Oron Catts, implemented in 2001 at the Harvard Medical School (Boston). Using tissue engineering technology that enables to cultivate organs and tissues of different organisms in vitro, the artists grew a pair of wings out of a pig's stem cells (Catts 2004:418). And though technological problems with transplantation of the artificially grown wings to a donor animal have been successfully solved, the artists decided to conclude the project at this stage, and not to bring it to the stage of developing a real chimera. Their deliberate decision not to complete the project points to the fact that it is precisely the pre-programmed uselessness of the pig wings, that are wings only in form, but are not designed for flight in their essence and inner construction, which makes them a fact of art. Thus, the Pig Wings project by Zurr and Catts should be added to a long list of historical artistic 'failures', such as Leonardo da Vinci's flying machine, constructions by Tatlin and Tinguely, and others. This impression grows many times also at an external, visual level, because the shape of the pig wings resembles the remains of an archaic pterosaur – which was, by the way, mentioned by the artists in their synopsis of the project (Zurr 2004:410) – which, disassembled by contemporary researchers, have been buried forever in the cabinet of curiosities of present-day civilisation. The described type of artful engineering has a pronounced preventative effect, because stating the failure of contemporary science and technology it thereby acquires a human feature, helping us realise that once the world was different from that of today, and in general could have turned into something different from what it has become.

8. Chimerical design

Strategies of 'categorical failure' based on reflective and estimative knowledge belong to that sort of artistic research that expects an onlooker to be educated enough, as well as capable of concentrating on presented works of art. Preventative engineering of this kind is clearly elitist. It appeals to one's personal consciousness and in its social aspect interacts with forces inherent to an individual. Chimerical design, on the contrary, instead of being directed to conceptuality and fixedness as the above-mentioned strategies do, is based on the sensitive emotional experience of mass audience, which maintains a balance

between joint pleasure and mere social irritation. Those are technological peculiarities of chimerical design that contribute to the formation of needs that are guided exactly by these emotions. For instance, the need to shock is the essential adaptive reaction to the increasing menace that people encounter nowadays. On the other hand, the need for pleasure from playing with a chimerical subject, its entertaining element growing more and more radical, causes an extremely intense feeling of awareness that Something Alien is present in the habitual orbit of ordinary things. The consciousness of the chimerical object's biological duration, and of the fact that its genetic structure, being absolutely connected to the biological decree of natural existence, directly corresponds with the greatest manufacturability (actually – with being hand made), forms the basis of endless social irritation and pleasure in respect to the works of chimerical design.

The history of fine arts, and especially the history of design, proves that a work of design in fact is a prototype of a work of art, which does not expect personal focused perception, but is apprehended mainly by joint consciousness. Design theorists, who work on defining its fundamental characteristics, pay special attention to the dual nature of the perception of art works – through the tactile and optical components. The tactile component is recognised here as the predominant one because tactile perception occurs not only via a person's attention, but mainly due to the habit of using a thing, through the indirect practice of communicating with it. Unlike traditional design, its works providing us with a feeling of pleasure within the surrounding space, chimerical design means radical changes in the very psychology of perception. In the case of chimerical design the extreme Alien in its immediate proximity to us 'strokes' us, convincing us to have confidence in genomic world and plunging us into a genomic trance or dream as if that space exists not outside ourselves, but within our inner infinity entirely filling it. The principal feature of chimerical design consists of its extreme concentration on the problems of death redistribution, both in the literal sense, through beautifying living organisms, and in the metaphorical sense – through joining genomic commonness, which steps forward as a security for still more exciting prospects. Here the Ars Chimaera artist plays quite a special role as a technology guide, who helps a provider of chimerical service and a possible consumer of those come into an interactive dialogue. The Ars Chimaera artist appears to the public as a 'PR-anti-expert', 'sophist' of genomic culture, preoccupied with profanation of the truth, and promoting the ideas of welfare and human values to ensure their 'hyper-marketing' (Kac 2004:364).

Along with the social tasks of 'containment-through-intensification', important artistic tasks are also under consideration – those are the problems of the new material carrier of artful information and its physical technology (cf. Groys's "doesn't matter what it is, the carrier matters more"). By presenting media that enable us to perceive the works of genomic reality, in fact by letting us know of the impossibility of using traditional methods and tools of perpetuation any more, the art forms based on these methods are moved to media archives thus leaving space for the presentation of the next set of impossibilities, which can be obtained

only through a change in the technological standard. Therefore, potential change of material and technological tools and milieu throws us back to the problem of death redistribution in artistic work, but on a fundamentally different level, when the ultimate ideas of relations between art itself and the problem of one's personal death are reproduced in a ritual manner.

9. The mythological component

Interrelations between European consciousness and genetic engineering technologies pass now through the very first stage, which gives birth to mythology. This stage and the peculiar properties of living it through, as already mentioned, is characterised by the fact that the technologies discussed as technical varieties are still recognised as a foreign matter in the 'body' of culture, not yet entirely mastered, not yet obvious. They still cause cultural shock, and the euphoria surrounding them changes nothing in this respect. That is why right after the first works of chimerical art had appeared (though for society they are nothing but technical objects), it became necessary to think of genetic engineering innovations as a myth-producing field, and by scrutiny of its constituents to consider Ars Chimaera as an aesthetic practice and no more burdened with social and critical or affirmative attitude. Myth-producing milieu of genetic technologies is under consideration of the first Russian chimerical project, realised by the author of the given article on the basis of the Kaliningrad branch of the National Centre for contemporary art in collaboration with the Institute of virology named after D. I. Ivanovsky of the Russian Academy of Sciences (Moscow). Within this multilayered project, which has been in progress for a year, a chimerical plant is created, a gene of a light-generating system taken from one of the organisms endowed with bioluminescent phenomenon being fit into its genome. Transgenetic works are executed with the cactus known as Lophophora williamsii Coult, which belongs to the class of virulent hallucinogen producers, and up to now is used as a totem food by the North American Indians. Genetic materials inserted into the cactus and responsible for luminescence are GFP-like proteins taken from the Pacific actinia known as Anemonia Sulcata. As a result of this part of the project one might consider a series of artwork titled Consciousness on the Alert. It is a transgenic plant GM-L01 (15–20 numbered and signed saplings), which has never existed in nature before, and able to fluoresce within various parts of the visible spectrum (about polychromatic chimering, see below). In such a way, by endowing a totem object with hallucinogenic features ('hallucinogen having hallucinations' as an agent of genomic and vegetative reality) the phantom sense of mythological consciousness is highlighted. It is thus understood as a gestalt of Time, which tolerates neither limits, nor gaps within itself, as a sort of super-consciousness, where neither the cyclic recurrence of time nor reflecting subject exist – in a word, as a phantom sense of all the constituents of a great discourse on bio- and genetic engineering technologies raised by mass consciousness.

The work with the myth-producing milieu of gene technologies also necessitates research into material tools and environment (the so-called media contour), that allow Ars Chimaera to penetrate and be present in the given technological territory. The idea of chimerical design is connected with the second part of the above-mentioned project. Its principal goal is to constitute the applied catalogue of GFP-like proteins obtained from various non-bio-luminescent species – soft and madreporite corals, comb-jellies, actiniae etc. Apart from ordinary GFP A.Victoria, cloned in 1992 and since then used as a genetic marker (Chalfie et al. 1994), up to this point in Russia 26 various GFP-like proteins able to fluoresce within various parts of the visible spectrum have been identified and cloned in bacteria. They either fluoresce from the blue-green to ruby-red part of the spectrum, or do not fluoresce at all, but are coloured differently (Matz et al. 1999). As a result, synchronous genetic marking of an artistic object with two, three and even different various colours became possible. An illustration of the visual potential of such polychromatic chimering is presented here in the photo of a Xenopus laevis tadpole, the left and right halves of its body after micro-injection fluoresce with green and red correspondingly. Along with this research, a group of scholars guided by Dr. Prof. K. Lukyanov have discovered and described the effect of the so-called 'GFP-timer' – the phenomenon of gradual flaming of the red fluorescence among certain GFP-like protein in the E. coli bacteria transgenic colony irradiated with green light (Lukyanov et al. 2000, Matz et al. 2000). Thus, today it is generally possible to speak not only about static forms of chimerical design, but of kinetic ones as well (in the given case on the basis of using the GFP-catalogue), intending them to be a palette of the contemporary artist. In its turn, it means that the very trend of Ars Chimaera is likely to become a more complicated and variable media-discipline forming the basis for the development of future art-technologies.

10. Conclusion

It is a long way from early experiments to the practical use of bio- and genetic engineering technologies. Society today has enough time to concentrate on the discussion of the code regulating the use of new opportunities, and learn how to solve the associated problems. Moving from absolute social control to open discussion, from beautifying one's own emotional experience to putting them into practice, society should learn to consider its fears and exaggerations of new technology as the normal process of their adaptation. It seems likely that in the next stage of these relations the discussed technologies will remain 'simply' unnoticed, similar to what has happened with other technical devices and technologies: TV, space exploration, the computer etc. Everything mentioned has gradually become a part of the great human body, a continuation of his arms, legs, and soul – it is no longer Alien. The same is very likely to happen to bio- and genetic engineering technologies, and possibly it is going to happen soon.

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