Bio-Art and the Environment

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Complexity within Interconnectedness

By

Amine Elgheryeni

Foreword by Xavier Lambert
Postscript by Jean Jacques Franch

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Dr Amine Elgheryeni

FOREWORD

XAVIER LAMBERT

Amine Elgheryeni's work is situated within a set of very contemporary questions. It is to be noted, first, that underlying all this theoretical process is an artistic practice that is very rich, if somewhat little practiced in the Tunisian context, although upon reflection this looks like uncontested evidence. Amine's project, *Biolivart* is equally accounted for by the fact that Tunisia is internationally one of the foremost producers of olive trees. Evidence for this is not hard to find: simply cross the many hectares of olive trees which cover a major part of the Tunisian territory. The olive tree is thus a distinctive feature of the Tunisian patrimony. However, this is not a passive patrimony, where the end result is to harvest olives and, in a way, to be content with their existence. Evidently, there is an agricultural, industrial, and economic activity that revolves around the olive tree, as it is an important resource for Tunisia. But it is at the same time a patrimony that is maintained and improved. This includes the role of organizations such as the Olive Tree Institute in Sfax, which is an important contributor to the work of Amine Elgheryeni.

If Amine's work rests on a solid tradition, it is not a nostalgic one; his art is decidedly anchored in what is contemporary. This comes from the perspective of the tools and techniques made use of in his work, but also, and mainly, from the perspective of the problematic elements around which it revolves. The olive tree institute is much more than a scientific and technical partner. Obviously, it has allowed the concretization of works of art through the scientific know-how of its researchers;

however, far from simply subscribing to the provision of a service, these researchers have allowed adaptations during the realization of the work of art, by confronting their approach to the real (that their scientific knowledge offers them) with the work of art as fiction-under-construction.

Two imaginative worlds of a theoretically different nature are thus confronted with one another: the scientific imaginative world that we often associate with a certain formal rigor, and the artistic imaginative world that we suppose to be more unbridled. Konrad Fiedler presents the question thus: "Every science is development, the making of discursive conscience; every art is development; the making of intuitive conscience".[1] Fiedler clearly situates science on the logos side, on the side of the articulated language that constructs reality. Indeed, because it has to pass by a number of constraining and rigorous protocols in order to be validated, scientific research theoretically leaves no room for *fantasy*—including in particular what this word can mean in terms of the "imaginative faculty, [the] power of invention of an artist or writer, which itself correlates with the following definition: "That which has no model in reality is composed of imagination."[2] In a later excerpt, Fiedler articulates his thought: "When we talk about truth in the scientific and artistic sense, we have to take into consideration the fact that a scientific statement is true or false, and that in artistic expression—at least in literature and plastic arts, we can have the true and the false side by side."[3]

For Fiedler, then, the process of scientific elaboration is constrained by the necessity of a binary choice, true or false, which evidently does not stand the state of in-betweenness. By

[1] Fiedler, Konrad (2013). "Aphorism 56", Aphorisms. Paris: Ulm Edition. p29
[2] *Ibid,* p148
[3] *Ibid,* p148-149

contrast, the process of artistic creation, because it originates in intuition—in an intuition that does not proceed from the logos—is not constrained by this binary relationship of true and false, and because it feeds from fantasy, it allows the question of true and false not to be consubstantial with the work of art, in the creation process as much as in the completed work.

This notwithstanding, it seems to us that the question is much more complex than this. First, this is because the question of intuition is evidently not absent in the processes of scientific research. For a scientific discovery does not dawn on a researcher in a completed form in one go. Rather, it takes the researcher through a whole process of experimentation with a trail of essays, errors, and even dead ends sometimes, before reaching the anticipated results. However, the driving force in this process is precisely intuition."Direct and immediate knowledge of a certain truth which is presented to thought with the clarity of some evidence, and which will serve as a principle and foundation to discursive reasoning." A few lines later, it gives the following definition: "Clear or confused idea; the action of perceiving, catching sight of, or making out what is presently unknown or indemonstrable"; and then "The action of guessing, having a premonition about, feeling, understanding, or knowing someone or something straight away without going through the stages of analysis, reasoning or reflection…"[5]

Analyzing these three definitions, we understand that intuition is not a product of the rigorous protocol that we generally attribute to scientific thought. This is not to say that it contradicts it, though. It rather means that there are two different temporalities. Formal organization is the implementation of what has allowed the emergence of intuition. It actually

[5] Dictionary of Philosophy: from A to Z, (1934) Collective Work. Paris: Hatier, p. 55.

strongly requires abiding by a certain number of devices and processes without which the results of research will not be validated by the scientific community, and more specifically by which the experiment is reproducible in accordance with the conditions of its realization. But if this protocol is implemented, it is certainly because the researcher has had the non-formalized intuition of the putative result of his research.

If there is any difference, then, between the artistic process and the scientific process, it is not situated at the level of intuition. Unlike the scientist, the validation of the work of art for the artist is not related to formal protocol conditions. The first validation is done by the artist himself, who evaluates his own production according to several criteria: harmony with the process envisaged, aesthetic quality, general coherence of the work, etc. The second is done by the perceiver since, as Duchamp has made clear, it is the perceiver who makes the work of art. The third is done by the art institution (galleries, market, museums etc.). However, what constitutes the difference between this and scientific research is that these validations result from a total subjectivity. There are no objective criteria (fortunately) to judge the validity of a work of art as work of art.

The major difference between a work of art and the result of scientific research is that the first produces the real while the second produces reality. The real is of the order of what happens, what occurs. By definition, then, it does not pertain to the expected, nor to what is formalized already. The work of art does not offer solutions; it only raises questions. What characterizes the work of art is that it causes us problems in compelling us to go beyond our routines, to construct other

world views, to "create worlds" as Goodman suggests.[6] Conversely, the key function of scientific research is to turn the real into realities. Contrarily to artistic creation, its main function is to bring about solutions.

All this is clear in the context of the project *Biolivart*. Amine Elgheryeni asked the scientists of the Olive Tree Institute in Sfax to help him produce olive trees that gave multi-colored and multi-tasting olives. The Olive Tree Institute's role is to carry out research for the sake of conserving and ameliorating the national patrimony that is the olive tree. Knowing that the olive tree is one of the major agricultural resources of Tunisia, the importance of this type of research becomes evident. But we are similarly aware that the interest in red, purple, or yellow olives, with the taste of strawberry, melon, etc., is of a totally anecdotic order in the agricultural perspective that the work of the Institute justifies.

However, it is vitally important to note that the Institute's researchers were very seriously involved in the task and they put in the service of Amine Elgheryeni their competences as well as their microscopes, test tubes, Petri dishes, etc. For, the *Biolivart* work, if it is incontestably a work of art, is also closely connected to the rigorous scientific protocols of scientific research found in biology. This work falls under the contemporary trend of *bio-art*, with eminent predecessors such as Eduardo Kac in The Tissue Culture & Art Project in particular. The new relationships with the world that the emerging sciences and technologies have brought about, through NIBIB mainly, represent new porosities that shatter the taxonomic table's rigor and the different categories which were rather watertight up to now. From the moment we start from

[6] Goodman, Nelson (2007). Ways of Making Worlds. Trans M.-D. Popelard. Gallimard: Paris. p56.

systemic processes, we open new horizons, and a she-rabbit can become fluorescent or an olive tree can give quasi-strawberry or melon tastes. These projects, from the perspective of common sense, require on the part of the artist a regular acquaintance with scientific laboratories. But this equally requires—and this is a phenomenon that we are witnessing more and more frequently—a greater open-mindedness on the part of scientists who would accept that their research take them off the beaten track, that they become involved in adventures that take them away from the concerns of efficiency and even truth, to revisit Fiedler's debate, and take part in constructing worlds which, even if uncertain, are very rich in perspectives.

Furthermore, in an era where all that does not directly serve the direct profit of industrial and financial influential groups is exposed to public contempt, where the lives of millions of individuals becomes more and more precarious, where the planet itself is under conditional liberty, and where life is in respite not only for the human but also for so many animal and plant species to allow the richest 1% of the population to amass fortunes that are colossal but no less futile, this decidedly has something reassuring in it.

The olive tree, in addition to being a symbol of Tunisia, is also a symbol of peace. That is why, all in all, the fact that Amine Elgheryeni has made it an object of an artistic creation process within the conditions we have just cited, is to be taken very seriously. Indeed, it reminds us of the seriousness of street acrobats. And it is this seriousness of street acrobats that is the only guarantee that we do not live in a world of crazy people.

Xavier Lambert
Emeritus professor of plastic arts
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"It is no longer a question of making art and science converge in a common and globally illusory project, but rather of giving rise to a confrontation between an artist and a scientist in a well-determined time and place, about a given work or a given idea—which will allow each one of them to travel their own path. It is by accepting their specificities and their differences, and departing from them, that art and science can mutually become richer."[4]

—Jean-Marc Lévy-Leblond

[4] Lévy-Leblond, Jean-Marc (2010). Science is not Art: Brief encounters. Paris: Hermann. p. 52.

General Introduction

In our current world, we can see clearly the major and deep changes that our modern societies have undergone at an ever-accelerating pace. This happened all of a sudden, at the same time as the advent of the ICT revolution, in parallel with the spread and expansion of mass media, and following progress in the knowledge and applications of new technologies. So presently there are a number of signs which prove the existence of some traits that trace the profile through which we can recognize the present era. These traits resemble labor pains, which have resulted in this new era in which we live and to which we belong.

Some have already attributed to this contemporary era numerous qualities; however, as a prerequisite, we have to state that a general agreement exists already. It is summarized in giving to our society the label of a knowledge society.

It is to be noted that humanity has already started to make its first steps within this society. Furthermore, a no less significant fact should be noted. Namely, in this society, evolution in informatics, communication, biotechnology, transgenetics and nano-technology is so fast and is happening at a staggering pace. In order to show the necessity of having recourse to interdisciplinarity in our modern society, and to recognize its contributions in the domains of science, technology, art, and bio-art in particular, we have to insist on the relationship that has been established between man on the one hand, and on the other nature and the machine and the implications of their evolution resulting from the manipulation of the living being (plants, animals, humans). There's no better way of emphasizing

this than to remind ourselves of Denis Baron's statement in his book *The Mutant Flesh: Fabrication of a Posthuman*: "New technologies have thus engendered a cultural and cognitive revolution which has changed our connection with the world. Just like before, writing, then printing in the 19th century, had profoundly transformed our modes of living."[5]

In the current climate, it is possible to add another remarkable fact to what has been mentioned. Namely, a month, a year, or a decade hardly elapses without televisions, magazines, journals and media reminding us of the appearance of new findings, inventions, and innovations. In this regard, Jean Marc Philippe, in an article entitled "Cultural Matrix and Artistic Creation" attempted to assemble the distinctive features of the modern era by stating: "In fact, in less than a century, we can see that the frequency of the emergence of significant information correlates to less than the duration of a human generation. We can note for example that a certain number of informative elements and first-rate phenomena make their appearance no longer at a rate of one Galilee or one Newton per century."[6]

In the same vein, following an international conference on interdisciplinarity, Louis d'Hainaut, precisely in the foreword to his study, emphasized the rapidity and great frequency of the emergence of ICT and fast knowledge at a staggering pace, by stating that "in the 20th century, particularly in the second half, the unifying findings of science, … and the imposed break of frontiers by the complexity of domains have progressively led men of science and knowledge philosophers to consider the essential unity of diverse domains and objects of science. This

[5] Baron, Denis (2008). The Mutant Flesh Manufactured from a Human Post. Paris: Harmattan Editions p. 43.
[6] Philippe, Jean Marc (1994). "Cultural Matrix and Artistic Creation", in Man, Science and Nature. Eds. Michael Cazenave and Basarab Nicolescu. Paris : Mail Edition. pp. 234-235.

belief in the ontological unity of the sciences has become a more deeply established conviction, and constitutes the epistemological foundation of interdisciplinarity. Our century has witnessed new domains that do not fit under traditional disciplines but which have connection to them and contribute to making them thrive. Numerous problems of modern science are situated at the frontier and overlap with many other disciplines: this is the case of biochemistry. Indeed, this integration movement has only become more evident."[7]

On another note, one reason that legitimizes and justifies our problematic of bio-art is its insertion in the contemporary world and in the framework of globalization. As a matter of fact, in relation to what preceded, we can safely claim that the knowledge society was born as a product of the third industrial revolution, which was itself marked by an informatics revolution, and which humanity has known in modern times. Before this came the agricultural revolution which extended to the 19th century and the industrial revolution which reached into the 20th century, up to the beginning of the First World War. We have to note, however, that what distinguishes the era of bio-art manifests itself in a clear way as being accompanied by globalization and the wide diffusion of media and means of communication, which currently participate in institutionalizing aspects and foundations of what has been labeled the knowledge and information economy at a great frequency. The latter concept, in turn, expresses the features of the present stage through which the capitalist order passes and into which, starting from the 1990s, human societies have entered. This stage has one singularity: it is unique in being the only one that encompasses the above aspects.

[7] D'Hainaut, Louis (1980). Science, Technology, Art and their Relationship with the Local and the Universal. Regulation in Education Systems. Methodological Guide. UNESCO: Paris, p 20.

At a more global level, features of the era are production and economic development, which have become, progressively, more linked to knowledge advancement and to the technological inventions which accompany them in the dynamic context of globalization. Roger Garaudy argued that art is part and parcel of the knowledge society; he said: "We have been living, for half a century now, in extremely rapid times, rich in scientific, philosophical and social evolution. This speed has permitted the precipitation and realization of a new realism which is quite different from previous plastic conceptions. […]. The acceleration of the rhythm of history in the 20th century is such that artists have assimilated the new conception of the real, one which is a result of world transformation through sciences and techniques, and political and social turmoil, and that it is offered to us in everyday life, in an environment that is no longer natural and given once and for all. Realism is only awareness of a new reality and participation in historical development of this reality."[8] Production and economic development are based on new technologies which contribute to the construction, coding, signification, storage, transfer and development of knowledge and of different information.

Needless to say, production and economic development are based on big investments in scientific research and rational administration—that is, on a good management of natural and human materials, which are capable of offering the development service the necessary legislative and political framing. Thus, the world nowadays is closely witnessing a progressive transfer process, and the movement from a society founded on the production of merchandise and material goods made by industries, to a new society founded on the production

[8] Garaudy, Roger (1971). "Light Realism." in Aesthetics and Invention: The Future. Paris: General Union of Editions. p103.

of science and knowledge. It seems that, in this new society, as if the decisive factor in production and development is no longer reduced to the land proper and no longer restricted to capital, nor to labour, but instead has clearly become dependent on knowledge, which today is similar to a locomotive which guides projects of social and cultural change. This is actually the reason why it is presently the main source of research and why it holds numerous and vast economic, political, and cultural stakes.

In short, this being said, it is possible to agree wholeheartedly with Dominique Foraye who affirmed that, "at the heart of the knowledge society we will find possession of knowledge, which carries in itself the ability to renovate, to produce, to analyze, to treat, to transfer, to diffuse, and to use knowledge so as to create and contribute to the progress of humanity, thanks to the necessary application of this very knowledge."[9]

Today, it seems that what is targeted through the concept of the 'knowledge society' is to simplify the understanding of dimensions, of vast and profound changes that the modern world has reached and that are still touching upon its different sides. If we want to highlight one of the most important features of the present era, it would be globalization and the neo-liberalism that has accompanied it. It is to be noted that in this sense, the latter refers to a society where it is supposed that generalization, extension, reciprocal and shared participation, as well as the exchange and vast use of information and knowledge are widespread. The credit in all this goes to the contribution of new technologies that developed in the fields of informatics, communication, and new media. These were linked particularly to the conditions of knowledge invention, its

[9] Foraye, Dominique (2009). Knowledge economy: from Information society to Knowledge Societies. Paris: the discovery. p. 50.

production, its evolution, its diffusion, and its use in different domains of human development. So, in a global sense, we can affirm that the concept of the 'knowledge society' designates a type of society whose model approximates that very one if we closely examine the traces and prodigious, stunning moments of evolution.

We are then (if the comparison holds) witnesses to staggering events, and we are present at the same time as they occur in front of us with an ever-increasing rhythm and at a dizzying speed. However, we need to note that we are also witnesses to events in which we are actors too. Everywhere in the world, people are nowadays talking about a society which has largely gone beyond those that preceded it, not least thanks to the great hopes that it promises to realize. As a matter of fact, this society has made a qualitative leap from a consumption society to a knowledge one. Louis d'Hainaut, during his participation in the international conference on *Interdisciplinarity in General Teaching* held in UNESCO Headquarters from 1 to 5 July 1985, stated that: "Today's world has to face major problems whose consequences are serious, such as the threat of nuclear war and the degradation and pollution of the environment. These problems and their solutions necessitate interdisciplinary measures and collaboration between specialists from different disciplines since their complexity is such that they cause the interaction of very different aspects of knowledge."[10]

Reasons, motivations and justification of the proposed approach

First, because the research paths to follow weren't fully known to us, we have tried to solve one of the most important

[10] D'Hainaut, Louis (1985). "Interdisciplinarity in General Education." *International Conference on Interdisciplinarity in General Education* organized at Unesco House, Paris, July 1-5, p. 3.

questions, relating to the right to act and transform the environment, which, once acquired will allow, thanks to the waste itself, for the birth of an artistic creation and to put into place a new aesthetics of nature. The FAO (Food Agricultural Organization) has estimated that Tunisian fields lose, because of toxicity of waste, around 8 million hectares each year; this was based on the acknowledgment that natural ecosystems in Tunisia are generally fragile. This is principally the reason which has motivated us in our research and our project *Biolivart* to innovate biological colors which call for respecting, protecting and preserving nature. This has given birth to a bio-plastic creation which hopes to find its way in contemporary art.

Our aim has from the beginning been to work with different bio-artistic techniques on olive trees, to treat waste and to get rid of it in order to conserve nature. Our choice can be explained by many reasons: first, at a global level, in relation to olive oil production, Tunisia occupies a leading position. The plantation surface is estimated at one million six hundred and eleven hectares. Annual production amounts to seven thousand and fifty tons of olive oil and fourteen to fifteen tons of olive fruit, while the contribution of the region of Sfax (the zone of our study) is estimated at 37%, knowing that every ton of olives produces approximately 200 kgs of oil, 300 to 600 kgs of stones, and five hundred to one thousand and two hundred kilograms of waste (so called 'margine'). In addition to this, the availability of olive stones gives us the possibility of treating and revalorizing them, either by themselves or mixed with other natural waste such as algae, date stones, olive tree leaves, cactuses, etc.

Indeed, since nature has always been our source of inspiration, our aim was to create a cyclical and living work of art followed by a unique product. Nature has stimulated our imagination and

raised our artistic consciousness, confronting us with the problems and difficulties raised by the environment. It is through our quality as researchers that it has led us to treat such subjects and to try to establish a link between the arts, the sciences, technology and the environment. One has to concede, however, that this relationship is little understood, while artistic creation and biological evolution are closely linked to numerous and different domains, and art interferes in all domains (scientific, medical, touristic, economic, political and many others).

1. Problematic

Our problematic revolves around a number of questions that are logically related one to the other. We will thus ask the questions: What is bio-art? When is it possible to talk about innovation in art? What is it that privileges access to interdisciplinarity as an approach and an investigation method in the laboratory and in the artistic field? The tree which is in germ in the seed: is it already there soon to appear, or is it to be invented, represented or presented? Is it possible within the framework of a bio-artistic project, thanks to waste, by transforming it and exterminating the noxious parts of it, to conserve and save nature? Does art have the right to manipulate living organisms? What type of relationship does the artist have with the ethical? How are we going to present *Biolivart* to the public? And finally, how will the public receive the multi-colored and multi-taste tree? How are they going to react vis-à-vis a painting realized without a palette inside test tubes?

These questions will probably help us to understand, to innovate and to determine the subject of our research, and also to delineate the contour and limits of the problematic that we have set up. The merit of these questions will lead us to explain the symbiosis between art, science, and technology and to

present the result of the natural coloring of an open space and a living being. These questions will also lead us to introduce the bio-artists' commitment, which has presently become a subject of interest. This is observed not only in this moment amidst a revival of artistic practice but also in all the reflections and debates resulting from it. In fact, we hope to be able to prove that innovation adds value to the bio-plastic work of art. It defies, as a cyclical and living work of art, any hindrance and objection through its conception and its realization of the fact that it will give birth to a unique product. In order for this to happen, we need to integrate new concepts, new materials, and to invent totally new technical combinations and propose original applications.

The first step of our research (in order to answer these questions) will then be to work on contextualizing art, science and technology, to base ourselves on other artistic trends that have practiced documentation, and also to refer to other creators that have thought about this topic before us. In other words, we will attempt to look for the material of bio-art, that documentation which revolves around its functioning and which is related to the reception of original bio-works of art. We have envisaged in this sense to complete this theoretical approach with a bio-plastic practical one; this is actually why these three major parts announced previously are divided into four chapters.

2. Objective of the research

Our book will enrich recent studies, devoted to the analysis of the current artistic commitment of bio-plastic practice. Our closest and most immediate approach is to start a debate around olive trees as fragments of nature. We have thought at the same time, about the fragmentation of the olive tree, as well as about the make-up of trees, their ecological cartography and naturalistic

collections. We based ourselves on several methods so as to identify each photographed living being. We have indicated the species name of each fragment, the date and hour of the shot, and finally the locality and geographical data of the individual fragments, while not forgetting to question the notion of identity and the status of the artist and the living work of art. Finally, we established the bio-artistic stakes and the aesthetic criteria of the biotechnological art, and we state again that our practice in relation to current forms of commitment is undeniable evidence that disqualifies and shows the falsity of affirmations claiming the death of nature or the triumph of individualism and generalized haggling.

What is more, there is also a new aesthetics of nature, and for good reason. For, without it there will be no impulsion, transformation, nor change.

Our objective is also to approach the question of identity in art which, in the era of new practices of bio-art, was raised by artistic creation. The subject actually imposes itself since the question of identity has influenced artists and has marked their discourse on bio-art. In the subject of bio-art, we have created a strong link with identity, which has pushed us to redefine our identity. This sharp awareness of identity to which we are incessantly confronted is originally founded on rigorous and precise work which has allowed us to distinguish our practice from others.

On the other hand, the originality of colors in plastic arts fields has guided us to ask ourselves about the nature and biological evolution of living beings experiencing this evolution. This determines a means of discovering a new nature and a new aesthetics without a palette, in a way which allows us to say that art is created in test tubes.

In order to be faithful to this objective, the first stage of our research set out all along its development to evoke and to present many laboratory artists' experiences. We have then tried to analyze these through several approaches and aesthetic interpretations. We have to note here that the references on which we based our work belong to bio-art and to some different orientations such as biological art, philosophy, biotechnology, genetic art, transgenetic art, living cell art, morphology, bio-diversity art, etc.

Finally, it is hoped that this research allows us to present a bio-plastic practice which can have an important and vital role in our environment. It is for this reason that the aesthetic commitment of our action has pushed us to look at the digital as a medium for serving artistic-scientific documentation.

3. Definition of key concepts

To avoid any possible ambiguity, we had to define key terms with precision and conciseness, given that our subject is about artistic practice and makes use of a specific vocabulary that is composed of a series of neologisms for which we first have to give the meaning. In this regard, the title itself deserves defining as we have systematically used it throughout our research and our project.

The concept bio-art, then, is composed of 'bio' which in Greek etymology carries the meaning 'life', and of 'art', which means 'technique'. Bio-art is about scientific practices. Its distinctive feature is its ability to modify the structure of living beings and their mode of life. It essentially targets (via science and technique) invention and innovation of a new aesthetics. It is defined thus as one of the varieties and forms of contemporary art. Xavier Lambert gives a good explanation of this by saying: "Bio art is a very vague term, and it is applied to various forms

of art that have some connection, in one way or another, to biology, biotechnology and life."[11]

Bio-art equally produces a complete vision of the living world. It specifically accumulates some acquired knowledge from science, art and culture, and in general, thanks to the manipulation of the living, aligns itself with the science of life. Bio-art has a certain resonance inside the scientific domain itself, seeing that it uses the artistic and scientific equipment of the laboratory on which it builds its discourse. And as scientists can benefit from the experiments carried out by artists in the laboratory, the latter group, through their teamwork with scientists, make their collaboration richer. This justifies the fact that we have made use of the expression 'bio-art' as a cover term which encompasses bio-artistic practices that bring into play a process of manipulating the living, a process which is undertaken by the artist-scientist on the plastic body.

The concept of bio-art refers, then, to the notion of 'plasticity', which Judicaël Lavrador explains in the following terms: "Bio-plastics correspond to a culture of corporal modification. The use of genetic engineering, of plastic surgery, and of biotechnologies permit us nowadays to operate on the body with a temporary or definitive modification. Plasticity is a set of operational measures which guarantees to the organism a different degree of organization taking into account interaction with environment; it is also a surgical possibility to modify the corporeal form and to change the organs.

[11] Lambert, Xavier (2011). The post-human and the issue of subjectivity. Paris: Harmattan, p 98.

Finally, plasticity is a cultural representation of an indefinite body that we should re-conquer in order for it to acquire itself."[12]

Departing from this definition, we can determine the meaning of another important concept, namely *the living*. So, what is *the living*? It is what human beings have in common and, in specific, it is organisms—that is, systems existing by themselves and whose parts (i.e. organs) are independent and have functions that compete to conserve with all others. More precisely, the specificity of all organisms is first to die and to develop thanks to a constant relationship with the external milieu; second it is to be able to reproduce, and third to be able to autoregulate (at least in part [for example the sick organism discharges antibodies]) and to auto-operate (the phenomenon of healing for instance). Furthermore, following Claude Bernard, we can define life as creation, stressing thus the fact that it is, according to François Xavier Bichat (1771-1802) "the sum of functions that resist death."[13]

We can equally define the concept 'color' whose definition varies from one discipline to another, from one researcher to another, from one chemist to another, and from a painter to a laboratory artist…

In order to attempt to define the concept 'color', different approaches can be thought about since it can be considered as an essential property or a danger. A constructivist approach considers color as that which is constructed by individuals, i.e., a structure or a social construct. According to Michel Pastoureau, color is "a cultural phenomenon that is lived and

[12] Lavrador, Judicaël (November 2002). "Bioart: the Generation Discomfort". Beaux Arts Journal, N 222, pp. 58-60.
[13] Dictionary of Philosophy: from A to Z, (1934) Collective Work. Paris: Hatier, p. 378.

defined differently depending on eras, societies and civilizations."[14]

It seems that a consensus has been reached about the definition of color. *Le Petit Larousse* defines it as sensation, which is like a reflection of an external reality in the consciousness caused, for example, by organs activating visual sensations. The same reference defines it as a psychological state which emanates from received impressions, specifically those predominantly affective or physiological. In this regard, Danièle Dubois states that: "the sensation of well-being (for example) is a physiological mechanism through which our organs record external stimuli."[15] The remainder of our comments have been devoted to the creation of bio colors as a chance to work directly on the living. In this way, we have remained closer to the olive tree and its waste as well as to the environment and to nature.

In order to qualify the research productions, we have made use of three concepts already known and used, namely nature, production and conservation. *Le Petit Robert* defines nature in simple terms: "Natural events are those spontaneously produced without human intervention. The natural is all that exists without human action. It is thus a system of phenomena submitted to laws."[16]

It is evident that the search for a bioplastic practice has played a major role in the economy of nature; this is why the concepts of 'production' and 'conservation' are equally important. The production undertaken by a laboratory artist is presented as a

[14] Pastoureau, Michel (2000). The colors of our Time. Paris: Bonneton Editions. p. 9.
[15] Brée, Joël (1994). Consumer Behaviour. Paris: Dunod Editions. p. 57.
[16] The New Petit Robert. (2015) Alphabetical and Analogical dictionary of the French Language. Paris. LR Edition, p. 1056.