



Argonauta

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*The Song of Ulysses
and the Ship of Theseus*

***Consider your seed:
you were not made to live like brutes,
but to follow virtue and knowledge***

Dante Alighieri

Thus, as everyone (even the very young) knows, canto XXVI of the Divine Comedy, also known as Canto di Ulisse, is set in the eighth pit of the eighth circle of Hell, where the fraudulent advisers are found and refers to the speech that Ulysses addresses to his companions to encourage them to continue their journey beyond the Pillars of Hercules.

Today's life sees us increasingly distant from fields and agriculture, ignoring it and providing a useful scenario for the proliferation of images that lead it back more to commercial suggestions rather than reality. This penalises the perception of innovation and its role in agriculture, where the actors are not only the researchers working in the laboratories, but also the farmers, that are, those who sow and work the land. The farmers

alone first, with the help of agronomists after, applied the results of the research to work in the fields, transforming the research itself into innovation.

They are the pioneers and architects of an extraordinary Italian agriculture, which is the pride of the country both for quality standards and for the diffusion of gastronomic culture and lifestyles, good healthy eating and good living, now a reference for the whole world.

Agriculture is the milestone of humanity's evolutionary path, a discovery that divides prehistory from history, long before the historical turning point that occurred with the transformation of spoken language into written language. Domestication of a wild plant is nothing more than an accelerated version of natural selection, the process behind biological evolution. Already in the nineteenth century, Charles Darwin suggested, with the theory of the evolution of species, that all living organisms on our planet could descend from a single common ancestor, through branched phylogenetic trees.

With the first agricultural revolution, the Neolithic one, there was an artificial selection among the plants present in the natural population and the first farmers began to reproduce only those species with the desired characteristics (for example larger fruits), then continuing to optimize the process, from generation to generation.

In a cultivated plant an attempt is made to increase the size of the edible part; if it is toxic, the edible part must lose the compounds that make it so, even if these defend it from

herbivores or rodents.

The plant with edible seeds must not even disperse them, otherwise it would be too difficult to collect them, thus allowing the grains of wheat to no longer fall from the ear.

The seeds must all germinate together, rather than at different times, as is the case in wild varieties of the same plants.

And it could go on and on.

Such an improving transformation was very slow, being the result of observation, intuition, luck and above all patience, since it was still unknown how the transmission of hereditary characteristics from one generation to another took place.

With the passage of time, genetically new plants were generated, often almost impossible to identify for those who knew only their respective wild ancestors. Domesticated plants thus become totally dependent on humans, often to the point of not surviving without the farmer's care. The plants are then exported to new regions, where the climate, the soil, the temperature, the length of the day, the parasites are different.

The trend towards demographic increase with the consequent need to increase the volumes of food, the slow change of the climate, the need to fight the new parasites capable of overcoming the defenses of the plants, require the development of new agricultural

technologies, such as a plow, to modify the structure of the soil, or irrigation, to increase the availability of water.

The second agriculture revolution starts in 1900, with the work rediscovery of a Bohemian monk, Gregor Mendel who, in the mid-19th century, following the transmission of some characters in pea plants, had identified the laws that regulate the transmission of hereditary genetic traits.

In a few years a new science was born, genetics, which formulated the concept of gene, the simplest unit of the hereditary patrimony of every organism, to then discover its location in the chromosomes contained in the cell nucleus.

The task then passes from farmers to scientists, and genetic improvement no longer takes place in the fields, but in agronomic research centers, where hundreds of varieties from all over the world are collected and studied.

The results no longer remain isolated, but are published and quickly disseminated, making them available and usable for everyone.

The speed of genetic improvement of cultivated plants begins to increase.

Agricultural geneticists can finally produce new varieties in a targeted way, by coupling types that have useful characters, perhaps coming from different continents, trying to ensure that these characters are found united in the progeny.

The search and collection of wild ancestors cultivated plants begins, as well as archaic and isolated varieties, still carriers of

useful genes, enhancing the great genetic diversity created over the centuries by farmers.

New artificial hybridisation techniques are added to the selection and targeted crossing, which allows the genes to transfer not only between varieties of the same species, but also between some different, closely related species.

Furthermore, substances or radiations capable of producing new mutations in the genetic heritage of plants are used.

Some varieties of durum wheat, with which pasta is made today, have been obtained using parents produced in this way.

Profound changes in agronomic techniques are added to the improvement of the selection and crossing methods.

With their characteristics, the new varieties are now integrated into a highly mechanised agriculture based on the systematic use of fertilisers and pesticides.

This second turning point in the history of agriculture culminated with the Green Revolution, between the 1960s and 1980s, when crop yields increased dramatically.

The benefits are immense and much of the world's population is freed from the nightmare of hunger, but with the risk of seeing the hundreds of less productive varieties disappear, as well as the assortments of genes that could one day come in handy.

Precisely in the years in which the Green Revolution achieved its triumphs, molecular biology in the laboratories began to know more and more about DNA and to use the molecular mechanisms underlying the conservation, transmission and expression of genetic characters.

The possibilities of the Neolithic Revolution (selection) and the Green Revolution (selection and crossing) are joined by two others: the ability to 'see' characters, previously invisible, through studying the basic sequence in the DNA molecules and the ability to 'Transfer' single genes in a targeted way, between varieties of both the same and different species.

Genetic engineering becomes the new technique used to modify plants and, like any new technology, could reveal unforeseen and unwanted consequences.

Thanks to this awareness, rigorous safety tests have been developed before the new 'engineered' varieties are placed on the market.

We are facing the third agricultural revolution.

... It is said that the wooden ship on which the Greek hero Theseus travelled was kept intact over the years, replacing the parts that gradually deteriorated. Although the ship kept exactly its original shape, it was replaced in all its components, but it remained 'the ship of Theseus.'

Was the ship of Theseus preserved or not?

Modified in its substance, but without affecting its form, is it still exactly the same entity or does it only resemble it?

'Moving from a precise place of departure to an equally precise point of arrival': so any dictionary of the Italian language defines the term 'travel.'

The Greek correspondent is 'nostos' which originates the word 'nostalgia', therefore pain, lack.

However, the journey should not be understood only as something concrete and realistic, but also in the symbolic meaning of desire, tension of knowledge and research.

The itinerary of Ulysses therefore does not consist only in reaching a final port, his native Ithaca, but in overcoming a thousand trials and dangers, enduring natural adversities with tenacity, shrewdness circumventing difficult unexpected events, the audacity in crossing the sphere of the knowable, as well as physical strength.



Ulysses

Alessandro La Motta

It is an almost archaeological and highly poetic approach at the same time that distinguishes Alessandro La Motta's modus operandi. Looking at the past as a means of understanding and understanding our present in a profound way, through the beauty and grandeur of what has been. His sculptures speak of distant worlds, in which we have firm roots.

Heroes and divinities capable of enduring terrible battles, privations and long journeys, but are not afraid to show their weaknesses by placing us in front of the limits of their humanity and consequently of ours. Figures that become the mirror of who we are and create echoes that resonate in our deepest part. In this work the artist brings us to the presence of Odysseus, the hero who most of all embodies shrewdness and intelligence, the one whom Athena calls "the best of all mortals for advice and word."

Even the way in which the material is worked, in that continuous ripple of its surface on which the light breaks creating multiple reflections, ideally seems to want to confirm the storytelling skills of the hero who in the end, after years, will be able to return home.

By finally making that return Odysseus, after having overcome trials and dangers and having shown such audacity as to go beyond the sphere of the knowable, will be able to reunite, return to his beloved wife, astute and prudent like him, finally calming that pain and absence that accompanied him throughout his journey.

From Eschilo to Copernico

*Prometheus chained to
"dominator et possessor mundi"*



Born in 596 BC, fifth ruler of the Mermerid Dynasty, Croesus, after the death of his father, King Alyattes II, had a brief struggle with his half-brother Pantaleone. While Alyattes had Croesus by a Carian woman, Pantaleone was the son of an inhabitant of Ionia. In the fight against his brother, a man with an unspecified name, but very rich, sided in favor of Pantaleone, whose goods were then brought as offerings by Croesus to various temples.

The father of historiography, Herodotus, tells of the arrival of Solon, a well-known sage, at the court of Croesus.

"Athenian guest, your fame has reached our ears, which is great because of your wisdom and because of your travels, since for the sake of knowledge you have visited much of the world: therefore, now a great desire has taken me to ask you if you've ever met someone who was truly the happiest of all," Croesus asked, expecting to be mentioned.

Solon, the Athenian host, avoiding adulation but expressing himself truthfully, gave two answers that did not please King Croesus, sure that he was the happiest man in the world.

For his arrogance, Croesus suffered the revenge of the Gods and after a few days, he had a revealing dream: Atis, the most indomitable of his two sons, would die hit by an iron tip.

King Croesus, on awakening, dismayed, decided to prevent his son from participating in any war, confiding through marriage to keep him within the home walls away from any danger.

The story tells of a great boar that destroyed the crops of the

kingdom and that escaped any hunting activity.

The exhausted servants urged King Croesus to organise a hunting trip with his worthy men, led by his son Atis.

Croesus, still mindful of the dream, denied it, inducing Atis to respond: "Father, once for us the noblest aspiration consisted in deserving glory in war or hunting, but now you forbid me both activities; you certainly did not see any sign of cowardice or fear in me. With what face now may I show myself among the people? What opinion will the citizens have of me, and my wife, who has just married me?"

King Croesus then confesses the dream, and Atis replies: "I understand you, father, and I understand the precautions you have towards me after such a dream. But a detail of this dream has escaped you and it is right that I point it out to you. From your story it appears that the dream announced my death caused by

an iron tip: and which hands does a boar have? What iron tip can you be afraid of? (...) Let me go."

Croesus then gave in, but he called Adrastus, son of Gordio and nephew of King Midas (a king known for his ability to transform into gold any object given to him by Dionysus) for help, occasionally a guest of the kingdom, as he was expelled by his family for the accidental killing of his brother.

Reminding him of how great a benefactor he had been, he ordered him: "You are indebted to me for equal favors; I want you to watch over my son who is leaving for a hunting trip."

Adrastus grudgingly accepted: "Sovereign, if you didn't ask me, I would never participate in such an undertaking, because it is not decent for me, with the misfortune I have had, to accompany young people of my age with a happy life.

"But now, since you are pushing me and towards you I must



Family

Luca Giovagnoli

In this work Luca Giovagnoli creates a family portrait by transporting the observer into an ancient temporal dimension, in which recollection and memory play a fundamental role, and bringing attention back to a reality where family rules and roles were defined by conventions which were also certainties.

A mental and physical order that the same spatial layout and the disposition of the characters seem to confirm.

As usual, the artist starting from a real image recreates it on the pictorial surface transfiguring it according to his personal poetic language, in which the brushstrokes give life to new figures and new stories that ask to be told and remembered.

Furthermore, in this painting Giovagnoli through the use of a mixed technique, thanks to the use of powders in the pictorial substance, gives the work a suggestive, warm and enveloping materiality, which leads back to the peasant world and its land.

A triangle where the hypotenuse is the species and the height is the self.

The conflict between the subjectivity of the self, where wisdom is the goal.

and the subjectivity of the species, where the cycle is the essential end.

The conflict between kuklos and timescope.

between the Greek theory "no man and no God made" and the Christian one.

show myself courteous, indebted as I am to enormous favours, now I am willing to do so; your son, whom you entrust to my supervision, as far as I'm concerned, you can expect him to return safe and sound."

The expedition, however, had an inauspicious outcome. On Mount Olympus the hunters found the wild boar and after having it surrounded, they tried to shoot it down by throwing their javelins. In an attempt to hit the boar, Adrastus's javelin missed him, hitting the son of Croesus, who, pierced by the tip, proved the prophetic accuracy of the dream.

Prostrated by disaster, King Croesus angrily invoked Zeus as the Purifier of his own home for what he had suffered at the hands of his host, having welcomed him into his home and giving food, without knowing it, to his son's killer, and as a friendship Protector, having sent the same as defender.

Adrastus, standing in front of the corpse, handed himself over to Croesus, holding out his hands, inviting to immolate him on his son's body.

Croesus, despite the great pain for the misfortune that fell on his family, seeing this, felt compassion for Adrastus and said: "I already have every satisfaction on your part since you yourself assign death as a punishment. You are not to blame for this disaster if not because you were an involuntary instrument; perhaps the person responsible is a god, who some time ago announced what would happen to me."

King Croesus gave Atis a worthy burial, while Adrastus, recognizing that he was the most wretched man in the world, waited for everyone to leave the tomb and there, right on the tomb, he took his own life.

But Creso is also the cultivar (*Triticum Durum*) that obtained with genetic improvement, with hybridisation and subsequent selection, the result of Italian research.

First Neolithic Revolution, then Green Revolution up to genetic engineering with today's Mutagenesis, Transgenesis and Cisgenesis.

Creso comes from the crossing of a wheat between hard and soft grains, between a Mexican and Italian variety, the Cappelli, with a mutant line induced by a combined irradiation of neutrons and gamma rays.

The dwarfed size of 70 centimetres, compared to the durum wheat existing at the time, made the cultivar resistant to lodging and with harvest yields much higher than those of the previously cultivated Italian cultivars.

Much of the world production of durum wheat is obtained from cultivars derived from Croesus, although it has been suspected, without any foundation, of being the cause of an increase in cases of celiac disease due to its gluten content which is said to be higher than normal.

These are unsubstantiated allegations and not supported by scientific research; furthermore, the quantity of gluten in Croesus is not different from that of several other varieties of wheat.

Genetic modification is not a modern invention, but it is as old as agriculture, with the only difference that compared to 10,000 years ago, the ability to apply it has improved, becoming more precise and faster; in the past selection was only done by farmers, very slow and limited to the mutations that occurred locally.

Some farmers, and the general population, reject genetically engineered plants, fearful that allergy-causing substances, as well as invasive, herbicide-resistant 'super weeds' may be produced in a plant.

Unfortunately, the commitments are still based on emotions and

on not knowing.

Absolutely avoiding any criticism or suggestion to univocal conclusions on this regard, I consider this task to be managed by other offices.

Are men able to upset nature, Aeschylus asks himself in the tragedy *Prometheus in chains*?

Prometheus, friend of men, is the one who gives them the technique and tools such as fire or calculation skills, making them masters of their mind rather than defenceless.

The love for knowledge, the meaning of the word philosophy in Greek, pushes the first Greek philosophers to speculate on reality and the Universe then express themselves regarding nature, calling it immutable by inscribing man in it, without the right of domination, but with the advantage of drawing from nature the laws to use its multiple properties, founding cities and governing the soul.

"Don't think little man that this universe was created for you. You will be right if you adjust to universal harmony." (Plato)

"No man and no god did. It has always been and always will be." (Heraclitus)

In the Jewish culture first, and then in the Christian one, nature does not however have the immutable background that there is 'no man and no God made', but nature is God's creature and as such is not regulated by necessity, it is not regulated by immutable laws, but depends on the will of who created it, who delivered it to the will of man, Adam, under the seal of dominion.

God said to Adam "... you will rule over the animals of the earth, over the fish of the waters, over the birds of the sky." (Genesis)

We are around 1470 when Pico della Mirandola, with his *De hominis dignitate*, reconfirms it, placing the human being at the centre of the universe.

'Already the Supreme Father, God the Creator had fashioned ... this abode of the world as it appears to us ... But once the work was completed, the Artist wanted there to be someone capable of grasping the reason for such a great work, of loving its beauty, of admiring its vastness.'

Giacomo Leopardi in 1824, on the contrary, with his *Nature Dialogue* and an *Icelandic*, concludes, with his cosmic pessimism, that nature is exclusively oriented to the mechanism of the existence repetition, without the happiness of individuals being satisfied, underlining the expression of nature that aims only at its conservation.

A materialist and mechanistic vision of nature cancels any hypothesis of anthropocentrism, which sees man as the ultimate creation goal, opposing the idea that the universe was generated and exists as a function of man.

And the question that arises is: 'Is the technique stronger or is the necessity that binds nature to its laws stronger?'

While the question is nonsense according to the Christian thesis, to which the technique is inscribed in the program of domination, but according to Sophocles 'the plow splits the earth, but then the earth is reassembled.'

The Greek and Christian theories, compared to the position of man towards nature, are distant and incompatible and become more complicated with Galileo, Copernicus, Descartes and Bacon, when in the 17th century modern science was born with the Copernican revolution which changed substantially the vision of nature.

Science now becomes the third element that looks at the

world to transform it, subjecting nature to experiments which, if confirmed positive, will determine the hypotheses previously formulated, converting them from hypotheses to laws of nature. According to Greek culture, nature has the immutable background that, 'no man and no God made.'

In the Jewish culture first, and then in the Christian one, nature is dependent on the will of those who created it and handed it over to the will of man. Nowadays, science and technology dominate, dominating both man and nature.

Man is no longer the centre, he is no longer the subject of history, but is reduced to a civil servant of technical instruments that imposes precision and rigour.

But what is meant by technique? Technique (not to be confused with technology) is the highest form of rationality achieved by man.

It does not foresee redundancies, superfluous dimensions, it does not foresee rhetorical forms, it does not foresee a language, but prefers numbers rather than language, foreseeing the maximum result with the minimum of means.

And then transgenesis, mutagenesis and cisgenesis.

What are we talking about?

Transgenesis is a genetic engineering technique of modifying the genome of a living species, through the insertion from the outside of one or more genes from other species.

Mutagenesis, on the other hand, does not require the presence of different species, but is a genetic technique of genome modification that does not involve the insertion of an alien DNA into a living organism, but instead involves the change of the genome of the living species through direct intervention on its genetic makeup, where one or more genes are retouched according to the purposes and needs.

Finally, cisgenesis, the genome editing technique, allows to change the bases of DNA (a bit like when we correct the words of a text on the computer), transferring only the genes of closely related organisms, avoiding the introduction of genetic and foreign materials obtaining targeted mutations as could happen in nature.

The domestication of plants means genetic modification of their wild ancestors, to make them more useful, more productive of better quality, easier to grow, more resistant to environmental stress, towards a necessary goal to allow nutrition for all.

If the genes of a completely different organism were inserted into a plant in the transgenic of the 1990s, with cisgenic and genome editing it is possible to manipulate the DNA of a variety in a targeted way to make it more resistant to parasites, modifying the genome in a targeted way, eliminating unwanted characters and speeding up the whole growth process at the same time.

Basically, the process of natural selection is imitated, making it faster and more effective in obtaining plants that protect themselves from viruses, fungus, and parasites.

It is a big step forward in the sustainability of agriculture, because it allows to reduce the use of pesticides, water and fertilisers, and to obtain healthier products that last longer.

A technicality in favor, paradoxically, of organic, because it drastically reduces the use of chemistry, relying on the plant's natural defenses.

The great challenge of agriculture in the next millennium will be to reduce the use of chemicals as much as possible, while increasing productivity.

Therefore, in perspective, an agriculture that is organic and sustainable as much as possible but uses technology to create

this sustainability.

Ecologists, however, continue to argue that ecological plant breeding can offer viable alternatives to these genetic engineering methods while respecting plant cycles.

These are natural crossings of plants, which would give the same results; the only problem is the timing: crossing the crops would give the desired characteristics after years.

In biology, it is known, many characters appear after several generations and crossings, and this leads us to suppose that various combinations of genes and gene variants that follow one another over the generations, can create new characters and new substances produced by the 'newborn' plant, can have possible toxic and unpredictable effects on the environment and food chains.

Trust and doubt have always been two antithetical expressions: the first can only arise from the second since both lead to pure reason.

It is often thought that trust and doubt are opposed to each other: those who trust would have no doubts and those who have doubts would not trust.

But is not so. The opposite of doubt is not trust, but knowledge: those who know with certainty have no doubts, and neither, of course, need to trust. Those who, on the other hand, have not come to know, have doubts about how things actually stand.

When there is no certain knowledge, the answer is Yes in the name of trust or No in the name of skepticism. Thus, who trusts and whom doesn't, base their thinking on doubt, that is, on the impossibility of obtaining incontrovertible knowledge. Positive or negative trust, to exist, needs doubt.

