

NATURE, SCIENCE AND POETRY

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Abstract

The following article has the purpose of investigating the original bond that links scientific and poetical thought, delving into the roots of western culture, in order to prove that they were linked - rather than distinct - to the same astonishment (thauma) in front of the state of being. During time, modern thought has progressively developed a clear distinction between rationality and imagination - relegating poetry to a condition of superficial function in society; nonetheless, this distinction has the high risk of making science dangerously indifferent to the same life it intends to study. Through philosophical and poetical analysis of trees - silent birth-givers - this article shows the poetical potential of every natural science. It's nowadays essential to restore this potential, in order to redefine astonishment, responsibility and curiosity towards life.

Keywords

Nature, Science, poetry, thauma (astonishment), trees, fragility, progress, education, philosophy, ecology

1. Science and Poetry

Science and poetry, rational thinking and poetical thinking, esprit de géométrie ed esprit de finesse (Pascal, 2006), have not always been linked to different and opposite fields of human thought, as the dominant cultural spirit of our time tends to show us. (Valzano & Sartor, 2021, 2024; Toni, 2024; Valzano, Accogli, Sartor, & Romani, 2022).

Travelling back to the very origins of our western culture, scientific rationality and poetical thinking were not distinct nor ever could be.

The first scientific and philosophical works were, indeed, poetry.

Consider Parmenide and Empedocle's philosophical poems (Diels & Krantz, 2008) or Lucretio's *De Rerum Natura* (Lucrezio, 1976). Whereas, scientific and poetical language have slowly withdrawn, until their eventual complete distinction, chiefly after the scientific modern revolution of the 17th century.

What, indeed, could the scientist and the poet, the scientist and the artist or the musician ever possibly have in common?

The dominant scientific-technological culture, deeply centered on economical criteria of utility and efficiency, has therefore relegated poetical thinking among the useless, the superfluous, the unnecessary, clarifying his difference form poetical thinking. But then, how is that original

bond among rational-scientific and mythical-poetical thought to be interpreted?

Motivations were often interpreted as a birth-phase, a childish beginning of scientific thinking, not yet mature, incapable of understanding scientific phenomena and therefore resorted to the imaginary views of myth and poetry; and yet, this interpretation is once again influenced by that conception of thought which came to prevail in Western society and culture, particularly with modern Cartesian rationalism — a conception that sharply unlinked the rational from the irrational, the 'clear and distinct' observation of reality on the one hand, and the visionary dimension of poetic imagination on the other.

On the contrary, the original scientific thought was intertwined with poetry for a much more profound reason, that Plato in the *Teeteto* and Aristotele in the *Metaphysical Book* had fully captured: the astonishment (*thauma*) in front of the state of being in the world; and this very astonishment is the true motion of the human thought, whether philosophical, scientific, poetical.

Why is there being rather than nothing?' — that is the fundamental question, the question which, as Heidegger states in *Introduction to Metaphysics* (Heidegger, 1979), gave rise to the very act of questioning itself in the human being, including the questioning of science itself.

There is, therefore, a poetic origin of science - an origin that science itself has gradually repressed in the name of a precision oriented toward productivity and efficiency. Yet, the reduction of reality to mere practical materiality - though understandable from a scientific perspective - cannot erase that birth: the sense of astonishment before the world, before the variety, richness, and intelligence of life in all its forms, a richness that, paradoxically, science itself continues to analyse each day. Chiefly, a science that forgets the poeticity of nature has in itself the destiny of becoming indifferent and insensitive to the nature and life it precisely claims to study.

And a science that becomes indifferent and insensitive to life - a science that has lost the capacity of wonder and cannot be poetically astonished - will ultimately become harmful and destructive to life itself.

Poetry, on the other hand, cannot escape its radical and passionate interrogative force in relation to the world.

It cannot, because astonishment and restlessness are precisely what define poetic thought—always ready to dive into, and lose itself within, the folds of reality, allowing itself to be carried by its varied and unpredictable flow.

Poetry reminds us how life's far from being an objective "fact" nor a guaranteed one, a final destination point. And yet, in front of life's emergence as a fragile and rare happening, modern science remains untouched; it no longer knows passion nor wonder, having reduced that original miracle to a mere fact, an objective and detached observation devoid of ontological resonance.

That life itself constitutes a strange miracle - a delicate rarity, a serendipitous deviation of matter - is a scientific truth dangerously put aside and forgotten by science itself.

Poetry, on the other hand, welcomes that very delicateness of the living as the innermost truth of its being.

Astonishment, wonder, restlessness in front of life and generally in front of the being itself are the innermost part of the entangled relation between poetry and the world.

Science and poetry

*Science and poetry are the same thing,
sitting on each other's threshold,
the same wonder that begins
at the roots of trees,
the same fight to climb up trunk, branches,
arriving like he who loves,
to the flowers, to the canopy.
Who first flamed then
the fire of this disharmony?
Who took one from the embrace away?
Who deserted the countryside
and the starry sky to the rustling wind?*

(Antonaci, 2022)

2. The Poetic Nature of Nature

Arboretica. Poems for Trees (Arboretica. Poesie per gli alberi) is my unpublished collection of poems dedicated to trees, written between 2022 and 2024 (Antonaci, 2022–2024).

Selected verses from this work were read¹ during the International Day for Biological Diversity, organised by Virginia Valzano, held on 30 May 2025 at the CEIT-UniSalento center in Cavallino (Lecce)².

These poems receive their inspiration from botanical readings on the astonishing world of trees.

As I dived deeper into those studies, I became increasingly aware of the immense poetic potential hidden within many scientific concepts.

¹ The poems listed here (including Science and Poetry), composed by the author in Italian, were skillfully recited by Antonio Della Rocca, with his clear and captivating voice, accompanied by original and engaging background music. Della Rocca is a journalist and author of reports and audiovisuals for television. He is also a reciter of poetry and narrator of numerous video documentaries on cultural and environmental heritage, which have won national and international awards, such as those produced by Virginia Valzano (<http://www.ceit-otranto.it/index.php/video>). During the Conference on Biodiversity, he was awarded the La Voce della Cultura prize by CEIT and the ISUFI Higher

School of the University of Salento because he manages to "draw", with the skilful use of his voice, the meaning of the verses, even the most remote, that words have failed to express.

² CEIT - Centro Euromediterraneo di Innovazione Tecnologica per i Beni Culturali e Ambientali e la Biomedicina. Università del Salento [Euro-Mediterranean Centre for Innovation Technology for the Cultural and Environmental Heritage and Biomedicine. University of Salento], founded and directed by Virginia Valzano (<http://www.ceit-otranto.it/>).

It was those “scientific” pages that awakened my interest and my poetical tension towards trees.

Are the trees truly so different - the tree perceived by the scientist and the tree perceived by the poet? Or is it, rather, always the same tree standing before us as an original unsolved mystery of living?

There is, then, a poetic potential within science that has long remained hidden and neglected.

Nowadays, poetry has the cultural duty to restore that poetic potential inherent in scientific knowledge from the oblivion, bringing back to light the amazing connections that bind our world—the chemical and biological kinships among the elements, the interplay of forces and substances, the elective affinities that resonates in matter and cannot leave either poetic or scientific thinking untouched.

Material and natural phenomena, no matter how much one tries to reduce them to the observable, always tend beyond themselves, much like a poem does; the “positive,” objective fact is never a “finished” or definitive point, but always one that resonates with other possible data, just as poetry makes the sounds of words and meanings echo among each other.

The observable datum thus becomes a sign referring to other signs. And it is precisely this infinite resonance that the “poetic nature” of Nature consists of.

The tree is masterful in its symmetrical structure: the roots are branches reaching out to life in the darkness of the soil, and the branches are roots that stretch themselves toward life in the light of the air.

The tree anchors itself to life, clinging both to the earth and the sky, showing through its very form that life is an effort, a “surge” (Bergson, 2018) in every direction - an act of life’s disobedience to gravity and the stasis of matter.

With trees, life puts its scepter in the world each day. It was with plants, indeed, that the transition from non-living to living took its first step. It is through plants that inorganic matter was indeed shaped, at a crucial point and time, into living matter.

Therefore, plants are the gateway through which life makes its silent and discreet step into the everyday world. They are the very guardians to that secret passage.

Yet, we have all too quickly forgotten this essential truth, this evidence that is constantly put before our eyes: life on Earth is not a given “fact,”

but it’s indeed the result of a process that largely depends on plants. (Mancuso, 2017).

Mountain elm

*The canopy of the mountain elm,
obstinate and resounding tree,
it’s a shadowy womb,
his fruits are birds
at their first flight and
nuts with wings,
resolute is their heartwood
and good at time,
to be vessels’ cocoon
and cathedrals’ scaffold.
Their twigs are even strong,
they bend but do not break,
falling, anyway, suddenly
on this world.
That’s why I think
and olm tree has always been
close to churches on the mountains
or standing up on hills.*

Plane tree

*A tree with a broad crown
belonging to the broadleaf family,
worshipped for his canopy,
and a city in the East,
being grateful take the name
“city of plane trees”.
Shy and modest in his nature,
wanting to be hidden
and forgotten right away.
That’s why it calls itself “common tree”.
Mountains are nourished by his soul:
Squirrels, beavers, hummingbirds,
owls and woodland ducks,
finches and songbirds.
Bears find a house in his trunk.
From its wood, furniture, drawers,
buckets, boxes and carvings are made.
The avenues are full of them,
because the plane tree cleans the air
from industrial dust.
In spite of his beloved soul,
the plane tree just loves to be
living in the world, year after year,
no much questioning it does,
just they stay what they are,
common trees: it’s of generous kind
to hide the name.*

However, this rushed and mythologized worldview overlooks that the very technological tools that tend to emancipate us from matter and nature are themselves inevitably made upon matter and nature.

Just consider then to imagine what might happen to the world soon after a gradual disappearance of plant life.

The oxygen in the atmosphere would no longer be regenerated, making the survival of aerobic organisms — including human beings — impossible.

The collapse of food chains would be the inevitable following step.

The disappearance of plant life would make traditional agriculture and farming impossible, leading to global famines and a surge of atmospheric CO₂, accelerating global warming.

In addition, in the absence of plants, soil would lose the reinforcing and protective function of roots, thereby becoming vulnerable to erosion and desertification.

The decomposition of organic matter in the soil would slow down, leading to nutrient impoverishment: widespread soil sterility would be the result.

The ecosystems of our Earth, as science itself points out, depend on plants for habitat and food.

Their disappearance would generate a mass decimation regarding the majority of terrestrial species, including animals and microorganisms.

As a consequence, life on Earth no longer appears as an ontological destiny of which humans are the purpose, but rather as a delicate circumstance—far from guaranteed - in which we are a mere part.

Therefore, today more than ever, there is an urgent need for a life-centered education - a profound rethinking of our role in the world that restores original balances.

We need to give an anthropologically new and distinct meaning to the concepts of 'civilization' and 'progress.' This cultural and educational need is, in fact, a vital necessity, and not a mere ideological problem of principle.

We must learn to perceive Nature in a different way—not as an obstacle or a limit to be defended against, but as a part of ourselves and our fate, and thus as a gift that we must treasure.

We must return to perceiving in the word 'nature' the resonance of the word 'birth'. 'Nature' is not a name, but it's indeed a verb, a transitive

action: Nature is what "gives birth", and this birth is nature itself and all that belongs to nature.

Human culture must not forget that life is what plants invent daily.

We must learn to sense this daily birth of nature unfolding before our eyes.

And that's the reason today we need a poetic-scientific education of the living - a form of education of thought that recovers its original spirit, the astonishment before the delicate being of the world, in all its forms

I would like to learn from trees

*I would like to learn from trees
to be better, more honest,
generous, thrifty,
like them gentle,
having no hesitation,
know how to measure words,
always fairly speak,
be content with my silence,
stretch my arm but not to seize,
in and out a thousand times
from home like birds from nests
giving my good creation to the world;
close my window blinds, no noise,
my thoughts murmuring on the branch
my soul lightening in the sun.*

3. Appendix. Original Poems

Scienza e poesia

*Stessa cosa scienza e poesia
l'una seduta sulla soglia dell'altra,
stessa meraviglia che comincia
alle radici degli alberi,
stessa lotta per risalire i tronchi, i rami
e arrivare come un amante
alle foglie, al fiore.
Ma, allora, chi ha acceso per primo
il fuoco di questa discordia?
Chi ha strappato l'una dalle braccia dell'altra?
Chi ha lasciato la campagna e il cielo stellato
vuoti allo stormire del vento?*

Olmo montano

*La chioma dell'olmo montano,
albero ostinato e altisonante,
è un grembo ombroso,
i suoi frutti sono*

*uccelli al primo volo
e noci alate,
il suo durame è ostinato
buono, un tempo,
per fare i gusci delle navi
e le impalcature delle cattedrali.
Anche i suoi rametti sono tenaci,
si piegano ma non si spezzano,
cadono però senza preavviso
su questo mondo.
È forse per questo
che c'è sempre un olmo
vicino alle chiese abbandonate
di campagna o di medio-alta montagna.*

Platano

*Albero dalla fronte ampia
appartenente alla famiglia delle latifoglie,
è venerato per la sua ombra,
tanto che una città orientale
per riconoscenza si fa chiamare
"luogo dove nascono i platani".
Dal carattere schivo e discreto,
vuol passare inosservato
e farsi subito dimenticare.
Per questo si fa chiamare "albero comune".
Ma della sua anima si nutrono i monti:
scoiattoli, castori, colibrì, gufi e anatre dei boschi,
fringuelli e altri uccelli canori.
Gli orsi nel suo tronco secolare trovano casa.
Dal suo legno si fanno mobili, cassetti,
secchi, scatole, intagli.
Delle città ne sono pieni i viali
perché il platano pulisce l'aria
dalle polveri industriali.
Ma nonostante il suo carattere magnanimo,
il platano ama semplicemente stare
al mondo, un anno dopo l'altro,
senza farsi troppe domande,
rimanendo quello che è,
albero comune, perché è dei generosi
non dire il nome.*

Vorrei imparare dagli alberi

*Vorrei imparare dagli alberi
ad essere migliore, più onesto,
generoso, parsimonioso,
essere come loro gentile
ma senza indugio,
saper misurare le parole,
dire sempre le cose giuste,
esser contento del mio silenzio,
tendere il braccio senza afferrare,
entrare e uscire cento volte
di casa come gli uccelli dai nidi
portando al mondo la mia opera ben fatta;
a sera chiudere le imposte senza far rumore,
lasciare i pensieri stormire sui rami
e l'anima schiarirsi al sole.*

4. Acknowledgments

I would like to convey my gratitude to Professor Virginia Valzano, organizer of the Conference, for having created such a stimulating environment, rich in insights and discussions on Biodiversity, as well as in reflections on the relationship between science and poetry and on their shared roots, which has been deeply and fully perceived.

My sincere thanks also go to Dr. Antonio Della Rocca, who so masterfully interpreted my poems and, through his sensitive and evocative use of voice, is able to "draw" the meaning of the verses - even that distant sense which words themselves may fail to tell.

I am also deeply grateful to the translator and poet Giulia Giusti, for her translation of the article and especially of the Poems. With her creativity, critical insight, and great professionalism, she has succeeded in conveying my thought with clarity, depth, and poetic resonance.

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