

# Science, poetry, romanticism

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## **Descriptive poetry as a literary genre**

In the 1770' and in the French cultural area, as far as poetry is concerned, it is surprisingly the old Voltaire who still sets the fashion and gives the tuning. To his eyes, poetry is an art whose justification is to aim at useful subjects and has to describe it in appropriate terms. Science not only figures in the list, but at the same time represents a special trend in the art of poetry, the one the historian of literature refers to as "poésie descriptive". In order to understand what this specifically meant, one has to consider when and where it was born. Here comes the name of a scientist and in the same time Jesuit father, Judler Josip Boscovic. In 1760 he publishes a thick volume of more than five thousands latin verses where he "describes"-the verb is eponymous- astronomical theories. The poem is brilliantly translated into French by Barruel.

Rhyme, concision, and ellipsis -i.e. omission of words considered as not essential to the understanding of the phrase- may define the poetic genre, thus implicating a frequent recourse to the metaphoric use. In this case to the personification of physical phenomena. This makes it compulsory for the poet, in fact for the scientist, to add some explanatory notes that cannot be separated from the poem, so that both elements, poetry and physic, are the constituent elements referred to as descriptive poetry.

One feature characteristic of this didactic genre is the place devoted to a particular science, astronomy, and to a particular genius, Isaac Newton. Writers by dozens echo Voltaire's dithyrambic praises of Newton put in epigraph in his *Eléments de la philosophie de Newton* published in 1738. A late example is given by Charles Chenedollé, *Le Génie de l'Homme*, published in Paris in 1807:

*Il dit; et le Grand Tout nous révéla ses lois  
Il pesa les soleils, il marqua leurs emplois,  
Et son génie enfin résolut le problème  
Qu'offrait à nos calculs l'architecte suprême.  
L'erreur fut détrônée: et dans l'immensité  
Son compas porta l'ordre et la simplicité.*

(in the first verse Il dit, he says, "he" is obviously Newton)

Around 1800 not only Newton but a number of scientists are celebrated in the poems belonging to the didactic genre. Their name is namely given. For instance l'abbé Desrois publishes in 1801 *La Géométrie en vers techniques* (a Geometry given in technical terms) where he mentions the names of Monge, Bossut, Lacroix, and the work of Laplace dedicated to the celestial mechanics:

*Aidez-vous de Bossut, de Monge, et de Lacroix  
Et sans cesse étendant vos plaisirs et vos droits,  
Atteignez, s'il se peut, à ce sublime ouvrage  
Qui fait le désespoir des savants de notre âge.  
L'esprit s'aiguise encore de l'obstacle irrité:  
Par un adolescent Laplace est commenté.*

Some poets even try the epic tune and doing this are not without echoing the odes the Greek poet Pindare was composing in honour of the athletes meeting in Olympie. For example Gudin de la Brunellerie's breathless narration of the discovery of Uranus following an observation by Herschel the 13<sup>th</sup> of March 1781:

*L'amour propre si vif, et si souvent déçu  
Prétendait dans les cieux avoit tout aperçu;  
Quand soudain on apprend du fond de l'Angleterre  
Qu'il s'offre un nouvel astre aux regards de la terre ;  
Que par delà Saturne il brille dans la nuit  
Qu'Herschel l'a découvert, qu'il l'observe et le suit.*

The scientist was given the place of an athlete in the intellectual field, and its high feats were celebrated by the poet with his special arms, the tropes.

Around 1800 the scientific discoveries that have the greatest impact on the public opinion are still related to the movement of satellites around the planets, what I here call "la grande horlogerie du monde". For the happy few knowing the language, heavens were offering the most magnificent show, with all kinds of measurements and possibilities of interpretation. Here is Fontanes –who was to become Grand Maître de l'Université under Napoléon in 1808- describing the phases of the moon in an essay on astronomy published in 1789:

*Quand la lune arrondie en cercles lumineux  
Va, de son frère absent, nous réfléchir les feux  
Il vous dira pourquoi, d'un crêpe enveloppée  
Par l'ombre de la terre elle pâlit frappée...*

Some fifty years after Boscovic' first attempt to create a descriptive poetry, and though in a completely different cultural context –the Enlightenment is over likewise the French Revolution- the astonishing thing is that this literary genre has not disappeared. For instance in the poem

*L'astronomie* by Gudin de la Brenellerie published in 1810, some hundred and twenty pages of notes are added to the poem consisting of only seventy five pages of verses. The author is meticulously truthful, anxious of exactness and accuracy. He declares: "The public longs for the truth; one should not give him fables; fables are just good for frivolous arguments". As far as he is concerned his aim is to account for the proof of the stability of the solar system, such as elaborated by the mathematicians Laplace and Lagrange. The following verses give an idea of the objective still at stake in this kind of poetry, i.e. to describe Nature so as to show its deeper sense of harmony:

*La nature bornée, incréée ou créée  
Dans l'espace a son lieu, dans la temps sa durée...  
A d'immuables lois elle est assujettie...  
De ce grand édifice en traçant le dessin  
L'éternel architecte ordonna qu'il fût stable  
Et voulant en même temps qu'il fût inattaquable*

In the beginning of the 19<sup>th</sup> century two poets, l'abbé Delille and Népomucène Lemerrier undertake to describe what they call "une peinture du monde", a depiction of the world. L'abbé Delille entitles this compilation *Les trois règnes de la nature*, the three reigns of nature. This study requires a variety of sciences ranging from biology to optics, from natural sciences to chemistry, and no longer the one and only astronomy like it used to be in the eighteenth .So Delille asks for advice some members of the first class of the Institut. Among others the naturalist Cuvier, the mathematician Laplace, the chemist Darcet accept to correct the text, and to put notes. At the age of the Industrial Revolution another topic, technology, is added to the list of the much praised scientific inventions. Of course the steam engine finds a special place:

*A peine la fumée, enfant léger du feu,  
Dans le tube d'airain où sa vapeur s'amasse  
Du piston qu'il refoule a soulevé la masse,  
Une eau froide, avec art introduite en son sein,  
Dans son canal brillant le refroidit soudain,  
Et par le froid magique, arrêtée en sa route,  
Une immense vapeur tombe réduite en goutte:  
Alors le lourd piston sent le fardeau de l'air  
Et retombe en glissant dans sa prison de fer.*

**Sur des pensers nouveaux faisons des vers antiques. (Let our modern minds compose ancient verses.)**

At the end of the eighteenth century the great poet André Chénier may at first look be considered a member of the literary cohort of didactic poets. In a sense Chénier is pursuing the Enlightenment tradition if only the fact that he is assigning Progress to human fate. But he goes further. For him science gives the model to the process of civilization: it proceeds by abstraction and accumulation benefitting from a network of remarkable minds that relay each other through the times. The strides forward are not great, rather small steps, but the advance toward progress is at the end undeniable.

In a fragment of Chénier's poem *l'Hermès*, that he could not achieve because his head was cut off by the guillotine during the Terror, the poet celebrates this slow pace of progress that guarantees its value:

*La science  
Porte son austère compas.  
La balance à la main, le doute suit ses pas;  
L'expérience alors de siècles entourée,  
S'avance lentement.*

In the third chant entitled *Science and Invention* Chénier is advocating science as a source of inspiration

*Souvent mon vol armé des ailes de Buffon  
Franchit avec Lucrèce au flambeau de Newton  
La ceinture d'azur sur le globe étendue.*

Of course beauty is inherent to the nature of the discovery, but the intellectual organization that serves as a prelude to the discovery is by no mean less beautiful. Chénier makes it visible in his *Hermès* as he imagines an angel speaking to a man of the remote ages. Well, it appears that the celestial being is not magnifying the beauty of the world created by God, but indeed the extraordinary reconstruction of the same world by man's mind:

*Un jour tout ce qu'ici ma voix vient te dire  
D'eux-mêmes, sans qu'un Dieu soit venu les instruire,  
Tes pareils le sauront. Tes pareils les humains  
Trouveront jusque là d'infailibles chemins*

When Chénier catches a glimpse of the future, what does he see? Adventure. In his poem entitled *l'Invention* these words come out like a *cri du coeur*: “Ce n’est qu’aux inventeurs que la vie est promise”; (if life is a promise, this promise is reserved for inventors.) As far as poetry is concerned Chénier prompts his contemporaries to give up classical *clichés*, and requires for a poet to use the far richer images of science, and more specifically newtonian science, could provide to an imaginative and gifted mind.

As a matter of fact with the same brutality as the guillotine cutting the head of Lavoisier on the eight of July 1794, this *Weltanschauung* ceased to please the intelligentsia as a whole and the public opinion all the same at the beginning of the nineteenth century The didactic poetry did not disappear -as we have seen above l’abbé Delille and Népomucène Lemercier and others- but if it survived it was more or less like a relic of the past. The causes in this change are to be found in literature as well as in politics, in religion as well as in the sciences, in ideologies as well as in historical events. This is not the place to analyse them here. Three verses of Fontanes, the dean of the Imperial University we already mentioned, offer a striking summary of the situation, this is to say this sudden out of tuning of the Enlightenment:

*Hélas! Plus de bonheur eût suivi l’ignorance  
Le monde a payé cher la douteuse espérance  
D’un meilleur avenir.*

In the field of poetry, romanticism current assertion toward science –it turns up like a topos- is that science has nothing to do with poetry, because in itself it doesn’t possess beauty.

### **Science has no poetry**

In fact, as soon as in the middle of the eighteenth century, Denis Diderot was requiring for poetry something gigantic, barbarian, and wild, in a word sublime. So he wrote in 1758 in his *Discours sur la poésie dramatique*. A poem should have nothing to do with sensualism in philosophy or any scientific explanation for Nature; Diderot was thus refusing what is above described as descriptive poetry.

Around 1800, this idea was resumed in a completely different cultural context and heralded by a completely different writer, the Viscount of Chateaubriand. His strong voice emerged once the Revolution was over. The man represents all by himself romanticism in France, which will dominate the first decades of the nineteenth century.

For Chateaubriand the creative act of a genius, -even for poetry which he did not practise in the sense that he never wrote verses-, only depends on the Muses, without any help of reason, without any reference to logical truth In the *Génie du Christianisme* we find the following assertion in a finally chiselled sentence: “La gloire est née sans ailes; il faut qu’elle emprunte celles des Muses quand elle veut s’envoler aux cieux” (glory was born without wings; it needs to borrow the Muses’ ones for its flight to heaven). If genius is a gift of God and nobody else, because genius is directly related to eternity and Beauty, God in this matter behaves thriftily; very few are chosen and by no mean the scientists. In his *Mémoires d’Outre Tombe* one finds the following assertion: “Mille

cerveaux auront beau se coaliser, ils ne composeront jamais l'oeuvre qui sort de la tête d'un Homère" (even if thousand minds unite they will never achieve what comes out from Homer's mind alone). Another assertion in the *Génie du Christianisme* shows how entrenched his author is in his opinion: "Toute pénible que cette vérité puisse être pour les mathématiciens, il faut cependant le dire : la nature ne les a pas faits pour occuper le premier rang".(however hard be this truth for mathematicians to accept, one must admit they were not created to rank among the best).

The explanation for this antinomy between Science and Beauty is developed in the second chapter of the *Génie du Christianisme*: "Il n'est rien de beau, de doux, de grand dans la vie que les choses mystérieuses" (every thing in life that is beautiful, soft, or great has to remain mysterious). Some lines further he adds: "En passant aux rapports de l'esprit, nous trouvons que les plaisirs de la pensée sont aussi des secrets. Le secret est d'une nature si divine que les premiers hommes de l'Asie ne parlaient que par symboles...( when relating to spiritual things, we find that mind's pleasures are equally secret. Secret is from such divine origin that in early times in Asia, people used symbols instead of words).

A genius now had to appear as a tormented and exalted mind, a romantic hero entirely depending upon inspiration, and a prophet inspired by what was unknown and mysterious. The question here is the following: did this approach appear as antagonistic to the scientist? Some of the prominent scientists of this time, such as Laplace, Haüy, Cuvier, Legendre, did not think so. They even acknowledged that the carrying out of their work was motivated by a sense of beauty, because beauty was inherent to the nature of man's mind. What they would feel, a mathematician like Karl Friedrich Gauss made it explicit in 1795 as he explained the origin of his research in number theory: "Occupé dans le temps d'une autre manière, je tombai par hasard sur une vérité importante de l'Arithmétique....Comme elle me sembla très belle par elle-même (je décidais) de découvrir les principes sur lesquels elle s'appuyait...(as I was concerned by another subject, by chance I came upon an important truth in Arithmetic...As it looked very beautiful to me, so I decided to query upon the principles on which it could be established...)

The exact contemporary of Chateaubriand, the mathematician Lacroix in his *Traité de calcul différentiel et integral* insists on celebrating the genius and glory of men of science, specially mathematicians of his time. He relates a conversation he had with Laplace about the subject, and Laplace's following assertion: "L'homme de génie arrive comme par instinct aux résultats; ce n'est qu'en réfléchissant sur la route que lui et d'autres ont suivie qu'il parvient à généraliser les Méthodes et à en découvrir la Métaphysique" (It is as if by instinct genius attains results; by thinking over it about the path, which he and others have followed, he succeeds in generalizing the method, to which he discovers its metaphysics.)

Prominent poets of the Romanticism did not share Chateaubriand's arguments about genius and its incompatibility with science. Alphonse de Lamartine and Victor Hugo are good examples. Both have in common a good training in sciences, a level of knowledge they gained in the college years at a time when education in sciences had acquired a new status due to the reforms initiated by the French Revolution. So Lamartine, in one ode being part of his *Méditations Poétiques* celebrates scientist's power:

*Ta pensée a franchi l'espace*

*Tes calculs précèdent les temps...*

*Ta raison sans cesse croissante  
S'étendra sur l'immensité...*

Then suddenly he changes his mind and writes

*O loi trop injuste et trop dure!  
Pour triompher de la nature  
Que nous a-t-il manqué ? Le temps.*

Death was ringing the knell of all arrogance. It was giving the limits of every human claim to dominate nature, and here the poet was blaming scientists for ignoring these limits. In a more optimistic tune, Victor Hugo was however following the same intellectual path.

*Astres, qui rayonnez dans l'ombre  
Où roulent vos orbites errantes ?  
Qui sema vos sphères sans nombre  
Sur tant de cercles différents?*

These were the questions he was confronted to in an ode entitled *Désir de Gloire* that he wrote at the age of sixteen. The scientist was not able to answer these questions, thus Hugo's admiration toward science would be limited. He was rejoining other poets of the romantic generation when he thought that the first source of inspiration for a poet would be imagination. And here science was blamed for draining the sources for imagination. As the second source of inspiration resided in the heart, science was not better off. "La science désenchante la nature et assèche le coeur", this was the common hold against the scientists.

So, in spite of their good scientific background, in a rather paradoxical way, French poets of Romanticism were the ones who closed down the hymns to science which had established the literary creation of their predecessors.